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THE WIDER ISSUES OF HEALTH LEGISLATION IN INDUSTRY*

BY

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The new Factories Bill/Act,† in spite of omissions and shortcomings, represents a very considerable advance in social legislation. Under certain provisions health and safety are automatically improved. There are other provisions, however, which depend for their effect almost entirely on the manner in which they are implemented. There is nothing automatic for instance about Clause 11, which provides for medical supervision, nor about those wide new powers of the Secretary of State, nor about Clause 46, which deals with the removal of dust or fumes. The effectiveness of these provisions and of many more will depend to a very great extent not only on the available degree of care and skill, but on a high level of co-operation and of common consent to make the results as good as is humanly possible. It is here that we touch the wider issues of legislation, which can be regarded as of two kinds. It can produce some results by fiat, but, on the other hand, a great deal of modern social legislation defies accurate check and depends for its success on the existence of a widespread desire that in a particular field progress shall be made. Any enactment aiming, for instance, at a higher standard of first-aid work in industry would fall into this latter category. Such a law could be utterly defeated by a variety of factors.

It is not true that the legislature can always be the prime mover in social progress. More probably it is very rarely so. As Benedetto Croce recently said, "Discipline which contains Society instead of being contained in it leads to a suppression of the intelligence." Good laws must follow in the wake of experiment, and it is perhaps true to say that in the social field they act as pegs securing advances pending a new forward movement. They make obligatory on the many what the few have already found to be good practice. To some such an idea is heresy, but it seems the only practical one in relation to a developing system such as modern industry. It is useless to legislate that things shall be done if there are not enough people with the necessary experience to do them. Hence there must always be a vanguard of voluntary effort and experiment before a position is consolidated by law.

Experimental Work

A great deal of experimental work in industrial health has been done by individual employers, and much of what is known as industrial welfare has proved so valuable to the general well-being of the worker that the new Bill/Act is to give to it the force of law (vide clauses 2, 3, 5, 11, 41, 42, 43). It has ceased to be voluntary, and is to become an obligation. Much of the work that is still being done voluntarily and against which the charge of paternalism has at times been levelled is in fact the developing embryo of future law. If it fails to be socially valuable it should be dropped. If it is successful sooner or later it will become a statutory obligation. Holidays with pay, medical and educational services, a shorter working week, the study of incentive schemes, pension arrangements, and feeding facilities are but a few of the fields of experiment at the present time. Without the voluntary activity of certain progressive employers, aided by the co-operation of many of the trade unions, we should not now have acquired the necessary data to form the basis of much of our new industrial law.

To obstruct this voluntary work would be very short-sighted, because experimental laws lead to confusion, and the real social growth cells develop strength only in a free environment. Dr. Lane will later explain to you the details of one determined voluntary experiment which has produced results of profound social significance. The policy of the Industrial Welfare Society has been criticized at times, but looking back nearly twenty years no one can deny that it is the voluntary effort called forth by the Society which has been a most powerful stimulus to progress and which has enabled ideas to become acceptable that ten years ago would have been rejected as unworkable. Without the practical experience of such voluntary schemes the health provisions of the present Bill/Act would have encountered an opposition in Parliament undoubtedly sufficient to wreck many of them. Robert Hyde and his co-workers deserve recognition by our profession.

Under the new Factories Bill/Act undertakings which have discharged their duties faithfully in the light of modern knowledge will find few if any new legal burdens placed on them. Certain things that were formerly done voluntarily will now be done under statute—that is all. The burden falls on those who have hitherto worked to minimal standards. These will have to adopt a new standard, and their competitive advantage over more conscientious firms will be reduced. In the long run such competitive advantage is probably illusory because good conditions and healthy workers lead to sound industrial operations, but on the short view it often happens that a firm working to a low hygienic standard can undersell the more expensively operated concern which increases its overhead costs by giving safer and more healthy conditions of work. Regarded in this way the new Bill/Act will enable progressive minds to work out new advances.

* Read in opening a discussion in the Section of Medical Sociology at the Annual Meeting of the British Medical Association, Belfast, 1937.

† At the time of writing the Factories Bill is still before Parliament. By the date of delivery it is probable that the Bill will have become law.—L. P. L.

Some day these will be enshrined in statute and a new forward step made possible.

Legislative Proposals

The present Bill/Act has made provision for interim advances by granting to the Secretary of State very wide powers (wider than in any previous Factory Act) to make rules and orders having the force of law. It is obvious, however, that the detailed needs of a developing system, such as modern industry, could not be met by constant recourse to the full legislative routine. Parliament has insufficient time and technical knowledge for these urgent but frequently recurring matters. Our public health system would long ago have broken down if the Minister had not extensive executive power, but some form of statutory Advisory Board may be desirable, for it is important that a wide range of knowledge should be available to the Minister, not only when he chooses to call for it, but when the parties most directly concerned desire that it shall be called. This proposal is no reflection on an efficient department served by a body of zealous public servants, but it is the demand that new conditions be met by new methods. Many of the wider issues of industrial health, such as the psychoneuroses and emotional disturbances, together with their physical sequelae, arise not out of unhealthy conditions such as H.M. inspectors are concerned with, but out of methods of work, methods of selection of staff, systems of supervision, payment, and incentive which it might be improper or difficult for civil servants to concern themselves with. The Advisory Board would, however, be free to raise and discuss these matters before they are entangled in prejudice by becoming political questions.

For the time being we must take the Bill/Act as it is and realize that it pegs industrial health and welfare at a higher level than ever before, and that provision will have been made for detailed improvements in that standard pending some future date when a new law becomes necessary. Our interest therefore ceases to be with enactments and becomes fixed upon four bodies of individuals:

1. Those who carry out the provisions of law in industry.
2. Those experts called in to advise or supervise.
3. Those who by research and experiment will pave the way to new advances.
4. Those who teach and in whose power it is to stimulate an intelligent and informed determination to make progress.

The wider issues of health legislation can be summarized in one word—education. This is the task that lies before the present generation. The long fight to obtain recognition of society's duty to its members is all but won. The next task will be more laborious, and it will lack the spectacular victories of the earlier political struggles. It involves raising the enthusiasms of indifferent but not hostile people, passing new ideas into the currency of daily thought and action and bringing about co-ordination between diverse and at times conflicting interests, and, above all, stimulating individual responsibility. The success or failure of the attempt means more than the health of groups of industrial workers. It means the health and ultimate fate of democratic society.

Protection of the Worker

Men and women are still injured, poisoned, and inadequately treated in respect of occurrences in industry that ought not to happen. In some cases there is criminal neglect and in others there is that element of chance which exonerates everyone. Neither of these classes need concern us here. The law can look after the former and improved technique the latter. On the other hand, the great mass of industrial mishaps, maltreatment, or neglect arises because of shortcomings in what one might term "the industrial conscience." Partly this is due to a lack of awareness, partly to lack of knowledge, but very largely to a failure to appreciate the problem in its entirety. The safety and health of the worker must be the paramount interest on any plant or process. The temptation to stop short in the search for proper protection and to hope for the best is strong and must be resisted. Even the worker will sometimes resist protective measures, but then we must go a stage further back and try to find out why. It may be that earnings are reduced if protective gear is used. It may be that prolonged unemployment has reduced skill to such an extent that any further handicap is crucial. The responsibility for solution is then shifted from the technical staff to the general administration or even to the State itself.

Proneness to Accident

Accident proneness may be inherent in the individual, but it may be the result of the impact of a particular system of working on certain temperaments. It may even be that a system comes into general use in a trade and that its effect on individuals is entirely lost sight of. The result may be an increase in accidents or in ordinary sickness, and no medical supervision as envisaged in Clause 11 of the Bill/Act will be able to detect causes unless there is a full appreciation of the possible effects of methods of work on the general health of the worker. A differential diagnosis in such cases often calls for the co-operation of several different people, and for a medical opinion, but whatever the particular trouble any investigation must be a wide one: social issues, personal issues, and often chemical or mechanical issues are involved. A change of foreman may affect an accident rate, beneficially because he runs his shop well, adversely because he harasses and distracts the men. A certain well-controlled and prolonged experiment on the effect of noise resulted in the unexpected conclusion that in this particular case the personality of the supervisors entirely overbalanced the effects of the physically produced noise. It was under the better supervisor that the greatest well-being was experienced, irrespective of the type of machine used.

Personality in Industry

These effects of personality tend to be lost sight of in highly organized plants. The tendency is often to place too much reliance on the physical and too little on the temperamental. Neither must be ignored, but balanced judgement and a good deal of knowledge are essential. Health is a state of poise and internal harmony. It may be upset in a host of different ways, and the results may be seen in increased accidents, increased sick absence, lower production, or even in remote symptoms such as local social unrest. The village in proximity to a pit felt to be a risky one is not in social harmony. These things are not by any means digressions. So much is moving within the industrial organism to-day. So many changes sweep across whole trades and occupations irrespective of single factories that it becomes necessary to link up general health conditions with industrial methods and tendencies in order to get a complete picture of events, and to this must be added the continually lengthening list of chemical hazards. Once, however, safe and just conditions of work have been produced it is deeply harmful to the self-respect, general health, and proper social development of the individual if responsibility is removed from him or her. Unless as individuals we can retain

enough of our personality to achieve personal successes or failures and have some scope for personal adventure in life, we all tend sooner or later to find other outlets for our self-expression; the escape into illness is one of them, and it is by no means generally recognized.

Responsibilities of the Employer

If we are going to look further afield than the actual work in our search for causes of ill-health, hazard, or accident, how far has the individual employer a duty in respect of these conditions? Some are obviously his responsibility, such as the bad selection or inadequate education of supervisors or foremen, and methods of pay that put a premium on taking risks. He also has a duty in certain cases to attend to the transport and feeding of his employees, but in other instances matters are obviously beyond his scope—for example, loss of skill due to prolonged unemployment, rush orders to fulfil contracts for which there is no real urgency, demands from the public for articles which are hazardous to produce and necessary only for the dictates of passing fashion. In many ways the pace at which work is demanded and the sudden changes that occur in the nature of the demand place a very great strain on even the most conscientious employer. After all, if he loses orders his employees lose work, and the whole question of precipitate ordering becomes a social question of some magnitude.

Perhaps enough has been said to indicate the wide range of influences additional to those covered by law that bear upon working conditions and indirectly on the worker. The worker stands at the focal point of a very complicated system of influences, and as things develop the system does not tend to become simpler. It may be that society will be constrained to pause and consider before long whether anyone gains much by the amount of hurried work and whether, conversely, a number of people, particularly the productive worker and those who immediately administer his work, do not suffer a great deal in ways that are as yet beyond the scope of legislation but not beyond the range of that research and inquiry which must, in the nature of things, precede any legislative action. It is certainly true that in many works young employees get a quite inadequate amount of time spent on their training, both technically and in respect of safety.

Medicine and Industry

Medicine in one way and another is coming more and more into intimate contact with industry. The new Factories Bill/Act brings the possibility of medical supervision on a wide scale into practical affairs. The selection of staff, the training of supervisors, and the investigation of production problems have medical implications. It is necessary to know something physiological and psychological regarding workers for particular jobs such as motor driving, flying, and deep-sea diving. Skin conditions, ophthalmic problems, and cardiac efficiency are but three on the physiological list, while the type of worker who is temperamentally unfitted for particular tasks is now receiving much attention. It is no use working these things out if we have no social mechanism for effecting transfers or for absorbing misfits where they will be assets. Misfits are not just psychological oddities. There are also countless physical misfits such as asthmatics, diabetics, orthopaedic cases, and ex-tuberculous patients. We cannot just relegate such people to an industrial scrap-heap. They have a right to be fitted in, provided that for their part they are willing to co-operate in reasonable measures for their welfare. The difficulties at present of dealing with these cases are great, but as they are overcome, or perhaps in order that they may be overcome, we need large numbers of medical men and women who are able to relate medical data to industrial conditions and who understand something at first hand of actual industrial problems. Industry is an intricate affair. It is full of all sorts of anomalies, but not everyone realizes that they are anomalies. It is in this connexion that it becomes so obvious that in general education a biological interpretation should be given so that the future administrators of industry and of the social services could be enabled to appreciate more fully the nature of the problems that face them. Such a question as the shortening of the working week and the increase of leisure has marked biological factors. Working conditions are an integral part of the process of living, and work is a part of life. A proper increase in leisure is essential, but the four-hour or five-hour working day is a myth—not theoretically or economically, but biologically. Somewhere there is an optimum balance between work and leisure which politicians and statesmen cannot determine without a knowledge of the biological and psychological needs of an emergent society. Planning must fit man and not man the planning. The present lack of a biological background to social action is nowhere more evident than in our views on workmen's compensation. An injured man needs temporary financial aid pending cure, or compensation for any permanent loss of earning power and vitality, but he also needs the services of a proper rehabilitation scheme. To stimulate the will to rapid cure and to find suitable work in which the man can complete his cure are twin problems. The longer a man is idle the harder is the process of return to work.

Industrial Training for Doctors

An industrial training for doctors as a postgraduate course with practical experience is essential. The financial difficulties are great, because merely visiting industries is quite inadequate and the proper training takes time. In addition to a study of processes some insight into managerial functions and technique is necessary to enable the doctor to understand the problems of administration. We are but at the beginning of a new phase, and how we deal with it is a matter of very great importance. During the great war the Army learnt that it was essential to bring in the medical staff when discussing major operations. Industry is now in the same phase. It is beginning to take medicine into its counsels and to give it more than a purely research and supervisory function. Progress is slow, but a step in the right direction was taken when the British Medical Association decided to prepare an ethical code for doctors working directly or indirectly in industry. They legislated for a new idea, and the proposals are before the Representative Body at this meeting. They went further when, in order to deal with the wider issues of social medicine, they formed a joint committee with the Trades Union Congress.

Until a few years ago a mere handful of medical men and women surveyed the major medical problems of industry. Mostly civil servants, starting with Thomas Legge in 1898, they laboured without any publicity and with very little recognition, doing a piece of work of which this country has cause to be extremely proud. The certifying factory surgeons did their share of supervision, and now medicine is asked to undertake a far greater responsibility for industrial health. The new Bill/Act lays very considerable burdens on us as a profession, and we must evolve the necessary machinery to train and educate (they are not synonymous terms) doctors for industrial work. Medicine is becoming a function of

management. Employers take medical men and women into their concerns, and in some an administrative and advisory function is combined. The Trade Unions have their own medical advisers, and the great hope is that all these different officers will continue to pull together in mutual confidence and consideration as they now so happily do. The universities are awakening to the need of supplying trained graduates (vide Birmingham and London), and the stage is set for a large-scale advance. This is likely to be rapid once we have overcome the difficulties of co-ordinating the sociological (labour management and health) functions of the small firms. These employ about two-thirds of the insured population, and the new Factories Bill/Act will be a great stimulus to co-operation on labour questions.

Social Implications

To an extent which those outside industry often fail to grasp, the industrial system of to-day is rapidly becoming the social centre of gravity. Many of its problems are primarily in the field of social medicine, not only in regard to the health and welfare of the workers, but indirectly in its effect on the whole social structure and the issues that arise therefrom in the lives and destinies of the bulk of our population. As a profession we cannot ignore the wider issues of industrial health; but we cannot understand them or play our part adequately unless we are prepared to study the industrial structure, from the worker at his bench and in his home to the administrative and technical functions which control his work, and to realize that in the widest sense his health is dependent on many factors, and that any attempt to deal with parts of the problem in isolation must prove a failure. Every preventive and therapeutic measure must be related to some central idea, because the worker himself is not isolated but is a functional part of an intricate system, and his health, happiness, and social efficiency depend on a high degree of technical and cultural co-ordination. Doctors, employers, trade unionists, economists, and teachers must understand each other and work together if we are to evolve progressive ideas which, after due trial, can be turned into the currency of practice, and without which no legislation can be of the slightest avail.

A specification for haemacytometer counting chambers and haemacytometer dilution pipettes has recently been prepared, with the co-operation of the medical profession, by the British Standards Institution. In framing the specification particular attention has been paid to the various tolerances specified. The accuracy of a blood count depends on the skill of the operator in obtaining a representative sample, in carrying out the dilution, and in the use of the counting chamber; it is also limited by the errors of the apparatus employed. The accuracy of the final count depends, *inter alia*, on the accuracy of a number of elements of the counting chamber—for example, accuracy of ruling, accuracy of depth, departure of under surface of cover glass from a plane, etc. In view of the number of possible sources of error the tolerances on individual elements had to be kept small in order to avoid the possibility of a comparatively large error in the final count due to an accumulation of small errors. On the basis of measurements carried out at the National Physical Laboratory on samples submitted by manufacturers as representative of current production, the tolerances were also related to the degree of accuracy attainable in manufacture without unduly increasing the cost of production. Copies of the specification may be obtained from the British Standards Institution, 28, Victoria Street, S.W.1, price 2s. 2d. post free.

THE WIDER ISSUES OF HEALTH LEGISLATION IN INDUSTRY*

BY

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My contribution to the discussion is an account of what has taken place in the electric accumulator industry during the last twenty years. It will furnish, I hope, a concrete example of what can be done, and what is now being done, to safeguard health in a dangerous industry, and will give some idea of the importance of individual effort as a complement to legislation.

In the first place I must point out that the particular risk in the battery industry is lead poisoning. In the years immediately following the war the industry began to expand. Batteries were needed for numerous purposes, and new fields opened up for their use. This demand had to be satisfied, and manufacture was undertaken by people with no previous experience of the industry and with little knowledge of the dangers it involved. They found that they were subject to certain Home Office rules and regulations, which they observed, or tried to observe—at any rate in the letter.

Soon it became evident that all was not well. A few workers were taken seriously ill, many looked and felt unwell, and the general standard of health in the industry deteriorated. Men became apprehensive when they heard of their friends suffering from lead poisoning; they became more worried when they saw that some of them were paralysed, could not dress or feed themselves for months on end, and did not return to work for a year or eighteen months. Some sought other jobs, but most carried on. They did what men usually do in these circumstances—they made feeble jokes about the danger, and a certain department became known as "The Dead House." The evil reputation spread to the districts round about, and it became, for instance, a stock joke for the wag visiting the works to misinterpret the notice "Drive Dead Slow." I mention these facts merely to give you some idea of the state of mind that existed among employees—a state of mind that can have produced nothing but harm, and probably caused as much suffering and inefficiency as the actual lead itself.

The larger firms did much to improve conditions, and during 1924 the Home Office authorities, viewing with alarm the rise in the number of cases of lead poisoning, decided that further and concerted efforts must be made. Employers and others were consulted, and the regulations governing the industry were completely revised. These rules, which came into force in 1925, made the best practice of the more progressive firms compulsory on all manufacturers, and regulations were drawn up by the Medical Department of the Home Office based on the vast experience of lead poisoning which they had accumulated in past years from other industries.

These regulations may be said to have brought the practice of the backward up to the level of the progressive firms, or, in Dr. Lockhart's words, "They pegged the advance." There was at any rate to be no slipping back from this level. This was a reasonable standard, and it was to be a minimum standard. Excellent results followed the introduction of this code of regulations; the number of cases began to fall, and has continued to fall ever since. This decline, however, has been assisted by another factor, which I will now describe.

* Read in opening a discussion in the Section of Medical Sociology at the Annual Meeting of the British Medical Association, Belfast, 1937.

Despite the introduction of the 1925 regulations the incidence of cases in the largest and most progressive of the firms continued to rise. This apparent anomaly is easy of explanation. I have already pointed out that the 1925 revision of regulations was largely based on the current practice of the progressive firms, where these regulations had been voluntarily applied for a considerable time. In making the code compulsory, therefore, little change was necessary in the methods of this factory. Their business, however, was growing fast, with a corresponding increase in the number of employees, and since the proportion of cases to employees remained fairly steady it is obvious that the number of cases would continue to rise.

Investigation in the Factory

Here was a difficult problem. The Home Office could not immediately introduce more stringent regulations; it was already working hard to administer the previous code. The employers also were extremely worried at the turn of events. They had spent a great deal of money in their attempt to put things right, and still they were unsuccessful. It was here that the Medical Department of the Home Office went outside the rules and regulations and functioned in its other most important capacity—that of adviser. The Chief Medical Inspector pointed out that the problem needed further investigation "on the spot," and it was suggested that the firm should appoint a medical man who would study the problem in the factory. Fortunately, this company had a board of directors which needed no persuasion that money so spent might reasonably be expected to result in a solution of the problem. At any rate they were prepared to make the experiment, and a medical officer was appointed for three years. He was to study the industry and its particular dangers, and was to make recommendations as to how improvements could be effected.

For his work it was necessary to have facilities for determining the effects of various doses of poison, how this entered the body, and the limits of contamination of the atmosphere which might safely be allowed. This knowledge was used when collaborating with chemists and engineers to produce safe working conditions. In addition it was necessary to elaborate methods for the routine medical supervision of the workers. But more than this was needed; it was essential that hours of work, and in some cases rates of pay, should be adjusted. These matters not only required the co-operation of a management which was fully alive to its responsibilities to the workers, but one which had the will and determination to see that every necessary step was taken. The figures show that the results of the experiment were satisfactory; in fact, they were so satisfactory that these methods were in 1929 extended to other factories in this industry, and with the same happy results. Here, then, we have an example of the wider activities of the Home Office in dealing with problems of this type. Rules and regulations embodying the best-known practice are laid down to ensure a reasonable minimum. Firms are then encouraged to undertake further pioneer work in which advice and expert assistance are forthcoming. This seems an eminently practical method of procedure, and one likely to give good results. To my mind the advisory function of this Government department is a most important one.

It might be argued that the method adopted in the case I have described is not the best method of procedure; that all investigations should be made by a Government body, and that rigid rules and regulations governing manufacture should immediately be based on these findings. The charge of paternalism might even be levelled at this industry, and at the methods it has adopted. Such a charge, however, can be easily met. It should surely be required of any employer that he should provide safe conditions of employment for his workers. If the public demands an article the manufacture of which involves expensive plant and an expensive organization, it must expect to pay a correspondingly high price. Attempts to cut prices at the expense of the worker's health were the habit of industry in the past, and it would seem that one of the biggest advantages of any large combine is the power it possesses of keeping prices at a level which will enable the worker to be adequately provided for in the matter of healthy working conditions. In this connexion it is interesting to note that in a recent trade agreement of which I have knowledge general collaboration upon measures for health protection was specifically agreed upon.

Need for Concerted Effort

Dr. Lockhart contends that the long fight to obtain recognition of society's duty to its members is all but won. This is true. What is now needed is a concerted effort to implement that recognition. There are still far too many individuals who evade the responsibilities the community rightly expects them to carry. There is no doubt that some of the smaller firms provide the best possible working conditions—conditions and relations which are only possible in a small undertaking, but unfortunately the converse is also true: many of the very worst conditions so far as dangerous trades are concerned are found in small firms. In some cases this results from the necessity to cut prices, and where this is so an attempt is often made to reduce overhead expenses by curtailing necessary health services. In other cases personal selfishness influences policy. No education of the individual employer will entirely overcome this attitude where it exists. He must be strictly controlled by legislation, which must not lag far behind the most progressive practice. He will then be obliged to provide reasonable conditions for his employees, but the standard can never reach the level that is actually attainable unless the attitude and outlook of this type of employer is overcome. Public opinion can do much towards providing the necessary stimulus, and the trade unions must undoubtedly co-operate. Hitherto the unions have been largely concerned with obtaining an improved standard of money wages. As time goes on, however, they must also co-operate closely in an effort to procure the best working conditions for their members, which means the development of scientific advisory functions.

It is well-nigh impossible to introduce legislation which will provide for all contingencies. For instance, it will be remembered that recently in the House of Commons an amendment to the Factories Bill was introduced suggesting that "safety first" committees be made compulsory, and it was evident that the general feeling in all parties was that probably this was undesirable and that regulations making them compulsory would be likely to do more harm than good. Exactly the same argument applies to much that is done in the dangerous industries. Legislation is able to go a great deal of the way, but final success depends largely upon the employer and upon his outlook, and—what is often forgotten—upon the co-operation and support of the employees.

The Trained Medical Officer

An employer willing and anxious to provide the best working conditions for his employees will in many cases need expert medical advice. If he is prepared to accept this advice he will find he avoids many pitfalls. An

interesting example recently came to my notice. A small factory which had been carrying on quietly and safely for many years decided to introduce so-called efficiency engineers to improve its methods. This resulted in turning out rather more material per man-hour, but at one stage a very large proportion of the workers were down with lead poisoning. In this particular instance, had a trained medical officer with adequate industrial experience been asked to co-operate with the engineers it is certain the "speed-up" could have been carried through without such disastrous results to health.

How is the employer to obtain this advice? Much may be procured directly from the Home Office authorities. Where, however, experimental work is necessary this may now be carried out at either London or Birmingham University, where a department of industrial hygiene has been opened. In other instances the problem might be investigated by the Industrial Health Research Board, which, as you know, is administered under the Privy Council. The problems investigated by the Board are usually of fairly wide application, and the findings can be of value over a large range of occupations or industries. In many cases it is important to have a completely impartial body, and one of high scientific attainments. It is a good thing, for instance, that the investigation of the incidence of gastric sickness among busmen was started by the Industrial Health Research Board some four years ago and was completed before the question became controversial. Whether or not the pioneer work is best done by University bodies, by the Industrial Health Research Board, or by the industry particularly concerned may be a matter of opinion, but that it must be done by someone is obvious. Most people will be ready to agree with this contention in the case of the dangerous trades. The figures available are convincing evidence that a danger existed, and that certain steps were successful in overcoming the danger, while the most obstinate director is likely to be convinced of the value of this type of work when he finds that it is actually saving him money and that his medical department is costing rather less than he had previously spent on compensation. It is perhaps not so easy in ordinary industry to convince the sceptic that these methods are necessary, but those of us who are in close contact with the medical side of industry know that it is just as important for these industries as for the dangerous trades.

Commentary

I hope I have made it clear that in order to obtain real and final success the attitude of the employer must be the correct one, and the worker must be co-operative. The education of both employers and workers in these matters is of vital importance, and it is only by improvement in both and by the general education of public opinion that we can establish the best conditions in industry. This education is going on and conditions are improving steadily, but it behoves all who are interested in the public health to see that this education grows and flourishes. It appears to me that this means that the medical profession must take a much greater interest in these health problems, and must make an effort to acquire a real and accurate knowledge of industry's needs in this sphere.

A large cancer institute with an experimental department, hospital, and out-patient department has recently been founded in Buenos Aires, with a branch at Bahia Blanca. It has been found that only 3 per cent. of the patients seek advice in the first month, as compared with 86 per cent. after the end of six months.

THE WIDER ISSUES OF HEALTH LEGISLATION IN INDUSTRY*

BY

ERNEST BEVIN

It is a gratification to the great trade union movement that the industrial health problem is receiving much closer consideration than at any period in its history. The problem has given our movement much anxiety and has involved considerable expenditure of money and effort in bringing about investigations to secure the scheduling of industrial diseases.

Opportunity for a Co-ordinated Service

With the passing of the Factories Act, although in many respects it falls short of our desires, and the placing of the industrial health problem on a more organized basis, an opportunity is presented for a really co-ordinated service which, for the first time, can be made universal in its application. We agree that a large contribution has been made by voluntary effort. It is true that it may have been introduced from a variety of motives, possibly paternal, or from the point of view of economic efficiency; or schemes may even have been conceived with an idea of handicapping our own movement. But motives do not always govern achievements or determine the effect of a course of action which may be taken. The net result has been to produce sufficient evidence to enable the State, employers, and trade unions to approach this problem and place it on a more organized basis, co-ordinating all the contributing factors and linking it with a complete medical service which, if handled correctly, will become a great national asset.

The Health Problem and Capital Values

If the health problem could be viewed from the point of its capital value it would be possible to arrive at a better estimate of the result to the nation of its neglect, for it must be remembered that the only capital a worker has is his skill and ability to work. Therefore if the capital loss could be calculated in terms of depreciation, as is done in the case of machinery, the facts would be such that, applying the same result to the mechanism of a works, the industrial management would call in the best scientific and engineering ability at its command to remedy the loss. I suggest that the loss of value resulting from the lack of proper standards for the health of the worker, if it could be translated into capital, would represent a greater total than would appear under any other head. No attempt, however, has been made to calculate the actual capital value of an efficient worker, as represented in output and gain to the community. In addition, the loss is extremely far-reaching, for whilst a machine may depreciate, its effect is limited; but physical deterioration of the worker has a very grave repercussion upon his home, on the well-being of his family, and on his general environment.

We welcome the consideration of the industrial health problem from yet another angle. For a long time it was assumed that the main thing to be decided in the case of a worker who was ill was whether or not he was a malingerer. Practically the whole of the Workmen's Compensation Laws and restrictions associated with certain health services have been based upon the assumption that protection had to be secured against exploita-

* Read in opening a discussion in the Section of Medical Sociology at the Annual Meeting of the British Medical Association, Belfast, 1937.

tion on the part of the worker, and to that extent the service has been handicapped in its outlook. I am not too sure that the attitude of the medical profession itself in the past has not been coloured by this conception. Happily, however, with the growth of the study of psychology and a deeper understanding of the industrial health problem, this approach has to a large extent been changed. Housing and the habits of the people themselves have also been a great stumbling-block.

The Works Doctor

Another difficulty which has handicapped us in dealing with the medical examination of work-people has been the attitude of the people themselves towards the works doctor, and the works doctor's attitude towards the work-people. It must be remembered that in many public services and large works the works doctor is looked upon as the person employed by the management to protect its interests. For instance, in one great undertaking if a man is away ill for a period of three weeks he must be specially examined before returning to work—not for the purpose of finding out the cause of illness, but to ascertain whether he is fit for the particular occupation upon which he is engaged. The result of this has been to create fear in the minds of the workers, and they try to get back to work within the specified period even though they may not have fully recovered. Had I time I could mention many other examples. In order to protect men undergoing medical examination my own organization has found it necessary to establish agreements making provision for the union to submit the worker to a second doctor if it is not satisfied with the decision of the works doctor; then, if agreement cannot be reached, to a medical referee. While this is necessary to protect the individual, the psychological reaction on the man is not conducive to his recovery.

Welfare Work

The same difficulty is experienced in connexion with welfare work. This has been very useful in some cases where there has been a common understanding. On the other hand, where it has been introduced without the union and in antagonism to them it has produced quite a bad reaction. For these and many other reasons I welcome the opportunity now presented for a complete overhaul of the whole medical service and the establishment of a branch which might be designated an industrial medical service.

Another great difficulty with regard to the health factor is that before steps are taken to remedy an existing evil one must establish a prima facie case by comparison with other controlled groups. This seems to be a fetish of the medical profession. The matter was brought out very clearly in the recent London bus situation. In 1928 I saw the difficulty which was arising: here was a body of men with a high physical standard of health who were beginning to show certain intensified nerve reactions different from those that had hitherto existed, and I pressed for an examination of the matter. It took me from 1928 to 1934 to get it into a position for a proper study to be made by the Industrial Health Board of the Medical Research Council, and the report of the investigation has only just been issued—in July, 1937, a period of nine years.

The Study of Health Problems

We want a service which will study health problems immediately they arise in industry and take measures to safeguard the health and welfare of the worker, remembering that prevention is better than cure. Very often a worker, for economic reasons, will suffer a long time before acknowledging he is ill and going to a doctor. Even then the ordinary medical practitioner has little time to study the complaint seriously, and may have only a slight idea of the effect of industrial conditions upon the health of his patient. Similarly the union, until it receives complaints from a sufficient number of its members, has little or no knowledge of the insidious development of factors undermining the health of the people. We must therefore try to ascertain the best way to take advantage of the new conception of health measures, to profit by our past experience and difficulties, and to tackle the health problem at its source.

Suggestions for a Co-ordinated Service

We should be reluctant to see a new segregated medical service established. It must be remembered that while we have exerted considerable pressure to bring factory legislation up to date, the workpeople and industry generally are paying a substantial sum per annum for a medical service which, in the general view, is not yielding the results we are entitled to expect. I am hopeful that ere long the new Joint Committee of the British Medical Association and the Trades Union Congress, together with the Departments of State concerned, will examine the whole problem with the view to ascertaining the best possible form of organization to establish: (1) a co-ordinated medical service: (2) a comprehensive research organization; (3) a reorganized panel service; (4) a more rapid and practical application of scientific discovery to the needs of the medical service.

The bulk of medical practice in this country is concerned with industrial workers. How can this be linked with the industrial medical service we contemplate? Taking the great hospitals as a centre, I should like to see the following experiment made:

(*a*) Twenty or thirty medical practitioners pooling the whole of their panel patients.

(*b*) The State or public authorities providing the necessary building accommodation and equipment for the setting up of a special clinic.

(*c*) Each medical practitioner, whilst continuing as a general practitioner, having an opportunity to specialize on some phase of industrial medical work.

(*d*) Works doctors participating in the work of the clinic and acting as part of the General Practitioners' Service.

(*e*) Close contact between clinics, hospitals, and research institutes, and every possible facility given to the carrying out of such work.

(*f*) Arrangements made for the diagnosis of the various cases to be sent to the appropriate research institution for investigation and record, and the prompt application of the most up-to-date treatment.

A better knowledge of the causes of illness in particular groups and classes of workers would soon be available. For instance, in looking over some of the last returns of the Registrar-General I find we have one of the highest tuberculosis mortality figures among dock labourers. The reason for this is a question not easily answered, but the high mortality figure is a definite fact. Is it due to the nature of the employment, to malnutrition of the workers, to irregular hours of work, to climatic conditions or exposure; or what is the reason for it? Similarly other industries have their specific diseases.

A detailed analysis and record of illnesses and diseases experienced in various sections of industry would be of tremendous value to the research institutes and to the

medical service. Details could also be supplied to the various Joint Industrial Councils throughout the country with regard to the trade or industry covered, and both sides would be compelled to discuss the difficulties existing; we should then get co-operation between the lay and medical mind in the promulgation of remedies.

Conclusion

The trade unions of this country, whilst asking for the most efficient medical service, are more concerned with prevention than with cure. It has been a great struggle for us to secure facts and data, and I do suggest to the great medical fraternity that individualism has been one of your greatest handicaps. Can you not concentrate your efforts and co-operate with us? If this is possible I am sure that industries will not limit their consideration to wages and hours alone. When discussing conditions of employment they will have before them a new basis upon which to work, resulting in general provisions for dealing with health problems being incorporated in the industrial structure.

As I said at the outset, our chief concern is to maintain what is, in fact, the capital value of our members, with ability to enjoy good health, preserve a high standard at home, rear strong and healthy families, and avoid the waste and loss of illness.

I appeal to the great medical service and to my own people to set aside all prejudices of personal outlook and make one great combined effort to establish a really correlated service that will remove one of the blots from our civilization.

THE USE OF ADULT SERUM IN MEASLES

AN ACCOUNT OF AN EPIDEMIC IN A PUBLIC SCHOOL

BY

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The following report of an epidemic of measles in a public school of three hundred boys with an age group of 13 to 18 years in which treatment by adult serum was used will be of special interest to all medical officers of schools as well as to doctors in general practice.

The school having escaped an epidemic of measles for several years the risk had been steadily increasing, and on January 15 we started the term with ninety-nine boys at risk of measles. On the 17th a boy was admitted to the sanatorium with a high temperature, and the next day he showed the typical rash of measles. The case was not severe: on the fourth day the patient's temperature was normal, and on the twelfth he was able to go home for a few days' convalescence.

Meanwhile the school had been infected, and the question of using adult serum in the hope of attenuating the disease in consequent cases was considered. The head master gave enthusiastic support to the suggestion, and steps were at once taken to obtain a supply of serum. Through the good offices of Dr. E. H. T. Nash of Hounslow we were put in touch with Drs. O'Brien and Parrish of the Wellcome Research Laboratory, by whom we were supplied with 100 doses of 10 c.cm. each. To replace the stock we undertook to return the equivalent in blood from selected adults. Members of the teaching staff readily volunteered for this purpose. The next step was to circularize parents and obtain permission to use serum. Consent was in the main readily given, but fifteen refusals were received. This number made a useful group of controls.

The most difficult point of all now arose—namely, to whom to give the serum and how soon? Supposing we were lucky enough to have escaped widespread infection and had meanwhile given serum to all at risk, we should very much have compromised our position in dealing with a future epidemic on the same lines. In the first instance, therefore, we decided to give serum only to those boys who showed a rise of temperature, or were +++ risks—a plus standing for dormitory, house, or form contact. The temperature of each boy who had not had measles was recorded daily. It was recognized, of course, that serum used in any but the earliest stage of incubation was probably of little use; but as it could do no harm and experience had not yet crystallized on this point, it was decided to proceed on these lines.

The course of events very soon clarified the position, and a fortnight later cases began to come in so freely that on February 14 serum was given to all who were susceptible. In the end seventy of the eighty-five cases were so treated. The object of this report is to be as helpful as possible to the head masters and medical officers of boarding schools, and in weighing the conclusions here arrived at it is important to bear in mind the following points:

1. That this is the first occasion on which the treatment has been used in a public school, and we were without experience to guide us.

2. That though the number of cases was large for a school, it is small for statistical purposes.

3. That the writer has had experience of at least three equally large epidemics at the same school under similar conditions.

4. That it is not always easy to give proof of clinical impressions even where those impressions are well marked.

The most important conclusion is that the serum proved all the help that we anticipated, and more. The attenuation of the disease was remarkable, and we shall certainly use the method in future. The load of anxiety a school medical officer has to carry during an epidemic of this nature must be experienced to be understood. With this adjunct to his armour of defence the doctor is materially relieved of that load.

Results

The examination of the records of the cases for statistical purposes supports the general conclusion arrived at very definitely, but the impression from clinical observation was even stronger.

The cases fall into three groups:

1. *Serum Not Given* (15 Cases).—This group includes the original case and one boy who was reported to have had measles as a child. The average period of pyrexia for these cases (excluding complication cases) was 8.2 days. The complications that occurred were one extremely severe case of bronchopneumonia (in oxygen tent fourteen days), and two cases of middle-ear inflammation necessitating paracentesis.

2. *Serum Given During Incubation* (20 Cases).—The average pyrexial period was 6.5 days. The complications were four cases of middle-ear inflammation necessitating paracentesis. Of these one was inoculated thirty-six hours only before the rash appeared, and should really rank with Group 1 as a complication. The remainder were injected ten, twelve, and thirteen days before the rash appeared.

3. *Serum Given Before Infection* (50 Cases).—The average period of pyrexia was 5.2 days. There were no complications.

The freedom from complications in the whole series is remarkable, although the epidemic did not appear to have been one of a milder type than usual, as indicated by the cases which were not inoculated.

Observations of Attenuation

The following conditions were observed to be attendant on the use of the serum:

1. Lower temperature, fewer constitutional disturbances, quicker recovery.

2. The rash is noticeably different. It is much more discrete, rather more ham- or copper-coloured. It persists a long time on the face and is not so profuse or well marked on the trunk and limbs.

3. There was at first a suspicion that the incubation period is delayed; the rash appeared slow to come out, even for measles. This suspicion was not borne out by subsequent observations. We had, in fact, been prepared to accept the view that the serum conferred some degree of immunity when used before infection. The steady curve of the incidence graph does not support this. The inoculation of fifty boys on the same date might be expected to produce a definite flattening of the incidence curve if temporary immunity was a result of inoculation.

The real problem in aiming at attenuation in this type of school is to select the right moment to give the serum. The ideal from the treatment point of view would be the certain infection of the largest number from the first case. In a preparatory boarding school it would probably be wise to use serum without delay.

There is no reaction to the injection. It is well to give it before bedtime. There is some stiffness locally some four hours after injection, and a few boys were allowed to stay in bed for breakfast. Two patients had chicken-pox concurrently with measles.

In all cases with ear symptoms of deafness, discomfort, or pyrexia the drum is incised as soon as any bulging is observed. If the fluid evacuated has passed the serous stage we are disappointed at not having been earlier in intervention. The importance of the early treatment of middle-ear inflammation is not sufficiently insisted upon in the standard works on medicine used by medical students. It is worth recording in this connexion that in fifteen years' experience of measles epidemics in this school we have never had a case of mastoid infection requiring operation.

Conclusions

The use of adult serum has a marked effect in attenuating the disease and in decreasing the incidence of complications.

In the epidemic here recorded there was no evidence of temporary immunity resulting from the use of the serum. Early treatment of middle-ear infection by incision of the drum will greatly reduce the risk of mastoid infection.

The *Transactions of the Twenty-third Annual Conference of the National Association for the Prevention of Tuberculosis*, which was held last July in Bristol, have now been published from Tavistock House North, Tavistock Square, London, W.C.1, as a paper-covered volume of nearly 200 pages (price to booksellers, 6s. 9d.; sold privately at 7s. 6d.). The main subjects discussed were propaganda and publicity methods, preventive institutions, with special reference to open-air schools, and the equipment and activities of a tuberculosis dispensary.

THE VALUE OF CONTINUOUS NEGATIVE PRESSURE IN SURGERY

BY

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The use of suction to remove blood, pus, and other exudates in throat, abdominal, and neurological surgery is now well established. Through a bronchoscope or oesophagoscope no other method would be possible; in brain surgery it is essential to keep a bloodless operative field with the minimum of trauma to the tissues. For such purposes suction pumps are required which will remove a large quantity of fluid quickly, while the amount of noise such a pump produces is of minor importance because it is only used in an operating theatre for relatively short periods. There are many excellent pumps for these purposes which work by pedal, electric, and water power.

Suprapubic Drainage

Although the Harris operation is accepted as an advance in suprapubic prostatectomy, an attempt at the immediate closure of the bladder is advocated by only a small proportion of surgeons owing to the risk of reactionary haemorrhage and the difficult and constant after-treatment necessary. The large-calibre indwelling catheter required is very liable to give rise to a severe urethritis, which later may lead to stricture formation. Suprapubic drainage is regarded as much safer, especially in the hands of the majority of surgeons. Can, therefore, the disadvantages of suprapubic drainage be removed? There are roughly two ways of treating a suprapubic cystotomy. The urine can overflow through and around a tube, to be collected by a suprapubic box. The main advantage of this method is that the apparatus is so simple, but the disadvantages are many. Macalpine (1932) pointed out that overflow drainage of the bladder predisposes to perivesical extravasation, which contributes to toxaemia in a patient whose excretory function is usually already damaged. He has shown that post-operative uraemia and sloughing of the wound are often the result of overflow drainage of the bladder: "the fundamental fault is the saturation of the perivesical structures before any of it arrives on the surface of the abdomen." He supported his assertions by experimental and clinical evidence, and also by the marked improvement in his results since he used suction drainage. Although suprapubic wounds frequently heal well without the use of suction, especially in private patients in good condition, I have also been convinced of the improvement in the morbidity and mortality resulting from the use of suction suprapubic drainage. I have based my opinion on a number of cases at the Liverpool Royal Infirmary and other cases treated elsewhere during the last three years. Furthermore, if a suprapubic box is used early it has to be applied with firm pressure in order to prevent leakage; such pressure causes much pain in a recent wound, which becomes oedematous and gaping, thus also predisposing to infection and violating Hilton's principle of rest to a healing wound. The other alternative of allowing the urine to soak into repeated large dressings and the bed is an "incomparable disgrace to modern surgery."

Problem of Suprapubic Suction Drainage

Even in 1914 Chetwood described an electric suction pump operated by a 1/12 horse-power motor; this apparatus

also included a pressure gauge with a regulating device. Although this elaborate machine worked well I think it was too cumbersome and expensive to be tried by others. In 1916 Churchman described a rotary electric suction pump, but very few details are given about its use. A most ingenious apparatus was also devised by Davis (1916); this was introduced into the Liverpool Royal Infirmary by Professor R. E. Kelly, but it was soon given up because it leaked. The apparatus consisted of a large glass bottle which was exhausted by a vacuum pump: the vacuum was gradually reduced by a very fine capillary tube, thus producing negative pressure for a long time. Various hydrostatic pumps (Jordan, 1936) have been used even longer, but most of them are cumbersome, and they have usually been discarded because they have failed to carry over clots. I was amazed to find that a pressure of at least 10 cm. of mercury is necessary to be certain of bringing urine and blood clot through a tube with a 3/8-inch internal bore: this fact explains why the Cathcart type of pump is quickly abandoned. The Bunsen aspiration pump which is fixed to a cold-water tap is powerful enough, but it can only be used in a hospital bed specially fitted up, because the noise of running water would disturb patients. With this type of pump the rate of suction is far in excess of what is required if enough pressure is obtained, for the rate of suction increases with the amount of negative pressure according to the rate of water flow from the tap. An excessive rate of aspiration tends to cause unnecessary gurgling in the wound, cooling of the bladder, and accumulation of urinary deposits in the tube unless irrigation is arranged. However, the great advantage of this type of pump is reliability, unless the water supply fails or fluctuates.

The problem is therefore the removal of only about 50 oz. of urine in twenty-four hours, but it is mixed with blood clot and possibly diluted with a variable quantity of irrigating fluid. Suction should start *immediately* after the operation and be continued for at least three days; by that time one hopes that the perivesical tissues have become walled off and the wound has had a chance of healing under a dry dressing. Macalpine advised aspirating every quarter of an hour, removing about 1/2 oz. of urine each time. Although theoretically this should keep the patient dry, allowance has to be made for coughing, change of posture, and the unavailability of the nurse every quarter of an hour, so continuous aspiration is better. I also have the impression that there is less bleeding from a bladder which is kept empty.

For the last few years I have been trying to construct a satisfactory negative pressure apparatus, because I believe the lack of one is the reason why suprapubic suction drainage of the bladder has not been widely adopted. A serviceable apparatus should be capable of producing any degree of negative pressure up to 25 cm. of mercury, with an adjustable suction rate: the rate of suction required is very much less than that of the usual electric pump. The difficulty has been to construct a pump which possesses qualities of being reliable, almost silent, easily portable, compact, and preferably capable of working on both the direct and alternating main electric current so that it can be used anywhere suitable for nursing patients.

Methods of Applying Suction to the Bladder

It is important to keep the bladder almost dry and yet avoid any possibility of the mucosa being drawn against the end of the tube—that is, atmospheric pressure must prevail in the bladder by arranging for a down draught of air. This is usually secured by having a right-angled glass suction tube fitting loosely in the rubber bladder-drainage tube; the glass tube must be slightly shorter than the rubber tube. Another excellent method (Macalpine, 1932) is to pierce the rubber tube with a silver cannula or a long exploring needle, which also must not reach the end of the rubber tube. Whichever method is used lateral eyes are necessary in the distal end of the rubber tube: the second method is better when a very small rubber drainage tube can be used. Irrigation of the bladder is easily arranged by allowing a mild antiseptic solution to enter through the air inlet tube or a tube incorporated in the rubber drainage tube—for example, Marion's tube. One may prefer to pass the irrigating fluid per urethram. Irrigation at the rate of about one drop per second certainly hinders clot formation and the deposition of phosphates in the tube, but it makes the urinary output estimation more difficult. This estimation is, however, more of prognostic than of therapeutic value. It is difficult to say at present whether the irrigated cases did slightly better than the non-irrigated ones, but I think they do.

Empyemata

In 1890 Bülau advised siphon drainage of the chest because he considered that steady removal of pus and a steady intrapleural pressure caused less shock and assisted expansion of the lung. Immediate open drainage appears to have been the accepted method of draining empyemata until the work of Graham and Bell for the Empyema Commission emphasized the dangers of the open pneumothorax in synpneumonic empyemata (Morriston Davies, 1930).

Closed drainage does not necessarily mean intercostal drainage, but it implies that negative pressure is present in the drainage tube. An absolutely gas-tight junction between the tube and the chest wall is essential for successful production of closed drainage if a water seal or some other hydrostatic (McEachern, 1933) method of producing negative pressure is used. Intercostal drainage certainly makes it easier to obtain a gas-tight junction, but the small tube it entails prevents the proper drainage of thick pus and fibrin. Roberts (1935) stated that repeated aspiration through a needle is inferior to closed drainage because the cavity cannot be emptied of fibrin, also the filling up of the cavity between aspirations fails to reduce toxaemia and to allow the lung to expand. Moreover, repeated aspirations every forty-eight hours distress a patient, and especially so if infection of the chest wall occurs.

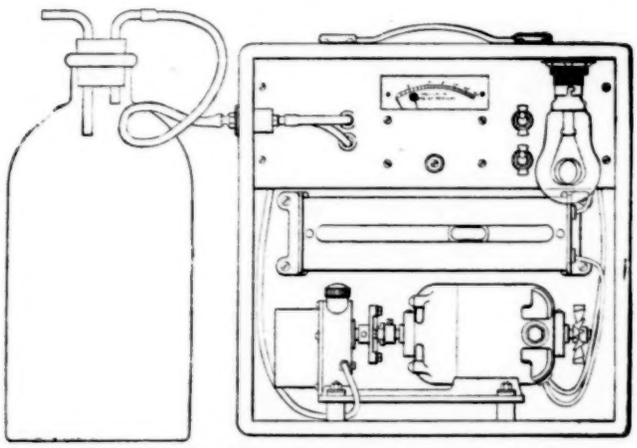
Closed drainage has many advantages over open drainage. The danger of the open pneumothorax, before the fixation of the mediastinum, is obviated. This applies especially in children, in bilateral cases, and in the synpneumonic streptococcal empyemata with thin pus. The negative pressure in the pleural cavity assists lung expansion, and therefore shortens the period of drainage required.

Closed drainage suffers from the disadvantage that the patient may pull out the tube, but this can be prevented by suturing the external flange of a Tudor Edwards (1931) tube to the skin and then using strapping to prevent the tube slipping through the external flange. In narrow intercostal spaces the pressure of large drainage tubes may cause necrosis of the adjacent ribs. It is better to resect a rib in all cases to ensure adequate drainage by a large tube, because rib resection need not prevent successful closed drainage. If a faulty siphon apparatus or a water seal is used fluid may be sucked into the chest, but

surely this is a fault of the apparatus and not of the principle of closed drainage.

The usual method of closed drainage operation is to pierce the chest wall with a trocar and cannula, followed by the introduction of a Pezzar catheter. Although Bettman's thoracotome (1933) enables a larger catheter to be introduced, I have mentioned the advisability of rib resection in most if not all cases. The "flapper" tube (Bohrer, 1934) is far too dependent on the gas-tight junction between it and the chest wall to be effective; also it can only cause negative intrapleural pressure during inspiration.

The Tudor Edwards drainage tube is probably the best because it is large enough to drain thick pus and it possesses an internal flange which greatly helps to maintain a gas-tight junction. If the chest wall is tightly closed round the tube and perhaps reinforced by a collodion-and-wool dressing there will be very little leakage. If, however, the tube is connected with a water seal the slightest leak will cancel all the negative pressure, which as a rule is a few inches of water only during inspiration and coughing. I have therefore tried the effect of a more constant negative pressure with my suction apparatus. A constant pressure can be maintained by placing a large bottle, the volume of which is considerable compared with that of the pleural cavity, between the suction apparatus and the large drainage tube. A constant intrapleural negative pressure of 30 mm. mercury should keep the diseased lung practically at rest in the expanded condition. So far I have not treated enough cases to give statistics, but it appears very satisfactory. I believe that in the past we have been afraid to apply sufficient negative pressure to the pleural cavity. I have also had the opportunity to apply 30 mm. mercury pressure to the pleural cavity after



A portable continuous negative pressure apparatus.

a lobectomy had been performed by Mr. Hugh Reid for the first week after operation. During this time there was no effusion and practically no bleeding, while the general condition of the patient was excellent. I believe that this pressure helped to prevent collapse of the remainder of the lung with the necessary sequel of pleural effusion or empyema. This complication of lobectomy was discussed at a recent meeting of the Association of Surgeons, but no effective preventive measure was suggested.

Summary

1. The value of suction suprapubic and closed empyema drainage has been confirmed.

2. An attempt has been made to construct a suitable negative pressure apparatus for the after-treatment of suprapubic cystotomy, empyema, and lobectomy.

3. I have tried to point out that suction needs analysing into its components of pressure and the volume evacuated with respect to time, in order to suit the particular purpose required.

I have to thank all the surgical staff of the Liverpool Royal Infirmary for allowing me to try out the above methods on their cases. I am also much indebted to Mr. J. L. Mayhook, B.Sc., A.I.C., for his untiring efforts in designing and constructing the pumps that have been used. The present one, which has proved most satisfactory, is a gear pump worked by a universal 1/16 horse-power motor with a pressure gauge graduated up to 30 cm. mercury. The pressure can be adjusted to the required amount by a blow-off device incorporated in the pressure gauge, while the rate of suction is controlled by a rheostat.

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BENZEDRINE: A REVIEW OF ITS TOXIC EFECTS

WITH THE REPORT OF A SEVERE CASE OF ANAEMIA FOLLOWING ITS USE

BY

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Benzedrine is the name given to a synthetic drug (β-phenylisopropylamine) chemically allied to adrenaline and ephedrine and comparable to them in its pharmacological effects. Prinzmetal and Bloomberg (1935) introduced it into the treatment of narcolepsy, as they had found it to be much more effective than ephedrine in this condition. Guttmann and Sargant (1937) recently reported further observations on benzedrine of an experimental and therapeutic nature which had been collected since the preliminary communication on this subject from the Maudsley Hospital by Peoples and Guttmann (1936). Their investigation was mostly confined to the action of benzedrine on the cardiovascular system and the psychological changes observed. Benzedrine produces a general psychological stimulation, and subjectively this is shown by increased confidence and initiative, and ease in making decisions, but is sometimes combined with a feeling of restlessness. They describe the psychological effects in detail, and further state that medical colleagues and others who have themselves taken benzedrine have found it of definite value in such tasks as lecturing or taking an examination. Their experience is that mild depression accompanied by retardation is the most favourable of all psychological disorders for benzedrine therapy. In conclusion, they warn against the possibility of addiction and are already aware that the drug is obtained without medical supervision. At present benzedrine may be purchased without prescription. As they say, this seems inadvisable with a drug the properties of which have still to be fully investigated. They emphasize the fact that the therapeutic indications for the use of benzedrine, apart from the treatment of narcolepsy, have not yet been formulated exactly.

Anderson and Scott (1936) have reported the cardiovascular effects of benzedrine. The patients selected for

the study were mild neurotics and psychotics, but were physically fit. The drug was given in amounts ranging from 10 to 30 mg. A certain number of normal subjects were also investigated. Pallor, flushing, palpitation, and both increases and decreases in the pulse rate and blood pressure were noticed in some of those receiving benzedrine, and in six recorded cases the effects included collapse, multiple extrasystoles, heart-block, and pain in the chest radiating into the left arm. In a case of involutional depression with paranoid ideas, severe cardiovascular effects of the administration of benzedrine were observed. After some mild preliminary symptoms over a few hours, this patient suddenly collapsed. The pulse rate was slow (56), and examination showed a 1/4 heart-block with an occasional extrasystole. Gradual recovery ensued during the following twenty-four hours. The patient's cardiovascular system on admission showed nothing abnormal, nor was there anything to indicate the likelihood of the severe reaction induced by the drug. Those authors quote Myerson and Ritvo (1936), who reported a severe reaction with collapse in one of their patients. Myerson, Loman, and Dameshek (1936), recording the results of administering 9 to 50 mg. of benzedrine subcutaneously to eighteen mental patients, state that "slight cardiac arrhythmia appeared in four cases. This was either of the sinus type or due to extrasystoles." Their intensive investigations demonstrated marked effects on the cardiovascular system and included a variable rise in the red and white blood counts without change in cell volume or haemoglobin content. Anderson and Scott conclude that until more precise knowledge of the cardiological effects of benzedrine are obtained caution should be exercised in the administration of doses of 10 to 20 mg. or more, particularly in elderly subjects and because detailed cardiological investigation of the effects of the drug appears desirable.

In an annotation on Anderson and Scott's report the *Lancet*, in the same number, comments: "If benzedrine does all that is claimed for it already, it is pretty certain, if used repeatedly, to produce some undesirable effects as well." That journal also referred to Myerson, Loman, and Dameshek (1936a), who mention a mysterious and astonishing polycythaemia—ten million red cells per c.mm.—produced on one or two patients by a daily dose of 40 mg. for ten days.

J. H. Fisher (1937), referred to the article of Anderson and Scott. The effect of benzedrine on normal persons was investigated at the Southend-on-Sea General Hospital on eight members of the resident staff. All of them showed a moderate rise of blood pressure, which returned to normal after four hours. The pulse rate in the majority of cases showed a slight increase after half an hour, but later was slowed in all individuals, and was slowest one and a half to two hours afterwards, when the blood pressure was highest. The slow rate while sitting was very unstable, for the least exertion caused a great increase. The only unpleasant feelings noted were by two individuals who on standing up had a transient feeling of faintness. The pulse rate in both had suddenly increased to about 130. The euphoria was well marked in all, and after one and a half hours' conversation was at a maximum. The drug was taken in a 30 or 40 mg. dose by the mouth at 8 p.m., and its effects on sleep were well demonstrated. The amount of sleep varied from two to three hours to none at all.

D. M. O'Connor (1937) reported a case where a striking fall of blood pressure and apparent sphincter spasm followed the administration of this drug in ordinary doses over seven weeks. S. Levy Simpson (1937) in a comment on an annotation in this *Journal* (1936, **2**, 1204), where it was stated that the drug also caused a rise in the red and white blood counts, referred to some experiments made by him and B. H. E. Cadness on guinea-pigs (1936) from which they concluded that "ephedrine probably causes extrusions into the circulation of erythrocytes, leucocytes, and platelets from the storage and haemopoietic centres, including the bone marrow." In addition Simpson mentioned that the sphincter disturbance described by O'Connor was also a part of the toxicology of ephedrine.

Sargant and Blackburn (1936) investigated the effect of benzedrine on the intelligence test scores of a large group of patients at the Maudsley Hospital with successful results. No ill effects of their experiments are recorded, except in the case of a young man suffering from a depressive state with anxiety features. He complained of very unpleasant subjective symptoms, an increase of palpitation, and sweating, yet actually he showed a large rise on retesting.

In a recent annotation (1937) the *Lancet* refers to the investigation of Davidoff and Reifenstein (1936), who reported the effects of a ten to fourteen days' course of benzedrine on normal subjects, and on several groups of psychotic patients. The manifestations observed both subjectively and objectively were extraordinarily numerous and varied. Five of the ten normal subjects developed a state of irritable restlessness which they did not relish, and from the case reports it was evident that the increase of activity and efficiency sometimes involved a dangerous degree of disrespectfulness to superior officers on telephones. Solomon, Mitchell, and Prinzmetal (1937) have produced a fair case for its beneficial effect in post-encephalitic Parkinsonism. They found, by contrast, that the drug was of no use in arteriosclerotic Parkinsonism or in psychotic patients with continuous asthenia, and out of their large experience they join other authors in giving warnings against its indiscriminate use. The *Lancet* infers that caution is clearly advisable, especially in the administration of the drug to normal or relatively normal people, as distinct from those with chronic or incurable disorders.

Case Report

The patient was a robust young man of 26 who had previously enjoyed good health and had suffered from no important illness. He was a pharmaceutical student, and was preparing for the final examination. He had seen articles in the lay press on the action of benzedrine, and learnt that the drug was recommended in the medical press for its stimulant effect on the nervous system, and in particular that it had been found valuable in preparation for examinations. A bottle containing fifty tablets of benzedrine, each containing 10 mg. of the drug, was obtained from a local chemist. From June 15 to 20 last he took two tablets each day, and at first felt no ill effects. On the contrary, he had a marked feeling of well-being and was mentally more efficient, and was more talkative for the first three days. Afterwards he experienced some dryness of the mouth, thirst, and occasional headaches. He worked hard on these days, and remained up until 2 a.m.; sleep afterwards was light, and he awoke easily at 7 a.m., his usual hour. On June 19 he was noticed to be pale, which was attributed to hard study; his colour was usually very good.

The written portion of his examination was held in Cardiff on June 22, 23, and 24, and on each of these days he took only one tablet after breakfast, as he had to travel in daily from a distant country town. Throughout the first part of the examination he had "throbbing headaches" to such an extent that his papers "suffered badly." At this time no

suspicion of any harmful effect from the benzedrine occurred to him. No tablets were taken from June 25 to 28, and sleep even on these days was very restless. On each of the following four days one tablet was taken, and he travelled to London on June 30 for the practical part of the examination, which lasted three days. Severe headaches were again felt daily, and sleep was poor and restless. He returned home by a night train in the early morning of July 3 and, despite a feeling of utter weariness, was unable to sleep during the journey of six hours. At home he was observed to be very pale, and he complained of severe headache and giddiness, thirst, and a dry mouth. Although feeling thoroughly exhausted he was fully awake and unable to sleep.

In the early afternoon of the same day palpitation and a feeling of faintness supervened. He was given a small amount of brandy, when he improved and dozed for a few hours. He became restless again and began to vomit, and suddenly collapsed. The patient was seen at once by Dr. Milne, who found him unconscious and in a severe state of collapse. The pulse was extremely weak, rapid, and irregular, the pupils were dilated, and the skin was cold and moist: he was critically ill for one hour. Vomiting was profuse and of a projectile character for about thirty minutes. He responded fairly quickly to the usual measures of stimulation. Sleeplessness and restlessness were severe for the following three days, despite the use of simple sedatives. Gradual and continuous recovery then ensued, and he is now almost well again. There was no diarrhoea, and constipation was troublesome during the worst stage of his illness. Micturition was normal, except for being more frequent as a result of taking increased fluid for thirst. No haemorrhages occurred throughout the whole course of the illness.

Blood films were examined by Dr. Phillips on July 5 and a slight anisocytosis was the only qualitative change, apart from the poverty of the red cells in haemoglobin.

I saw him in consultation on July 9 and found him to be well nourished but very pale. No retinal or cutaneous haemorrhages were present, and no jaundice. There was slight general enlargement of the heart and fairly natural sounds, except for a haemic bruit in the pulmonary area. The pulse rate was 84, with regular rhythm; and the blood pressure 124 mm. Hg systolic and 50 mm. diastolic. The other systems were healthy, and the liver and spleen not palpable. The urine was normal. Unfortunately, a complete blood examination was impossible on that day. The haemoglobin, however, was 40 per cent., and some films showed much the same qualitative change as in the previous examination. The appearance of the patient corresponded with a red cell count of about two millions.

A full blood count was made a week later, when he was found to have improved in health as a result of the administration of full doses of ferri et ammon. cit. The result was as follows: Red blood corpuscles, 3,080,000 per c.mm.; haemoglobin, 56 per cent.; colour index, 0.9; white blood corpuscles, 5,400 per c.mm. The qualitative change was a little more marked than at my previous examination, and many of the red blood cells now showed polychromasia. No nucleated forms were seen, but there were a few myelocytes.

I saw him again on August 1, when he had improved still further. He was much less pale, and said that he felt almost well again. He was free from headaches, and sleep was good.

Another blood count was now done, with this result: Red blood corpuscles, 4,940,000 per c.mm.; haemoglobin, 94 per cent.; colour index, 0.9; white blood corpuscles, 6,800 per c.mm. The red blood cells were well stained and showed only slight variation in size. No polychromatic staining was seen. The white blood cells were present in normal proportions, but there were no abnormal cells.

Conclusion

A case of acute aplastic anaemia following the self-administration of benzedrine is described. The total amount taken was 190 mg. in the course of nineteen days. Severe cardiovascular collapse occurred the day after the last dose was taken. Gradual recovery ensued, with restoration to normal health. The patient told me that the drug was being rather much used by students preparing for examinations. It is evident that the sale of this drug should now be strictly controlled by including it in the Schedule of Poisons.

I am much indebted to Drs. R. Baird Milne and Robert J. Phillips for their help in preparing this report.

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PERNICIOUS ANAEMIA WITH DIABETES MELLITUS

BY

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Though the combination of diabetes and pernicious anaemia is well recognized it is sufficiently unusual to merit study. The following case reports are illustrative.

Case I

A carpenter and joiner, aged 43, was known to suffer from pernicious anaemia with achlorhydria. He first came to hospital in July, 1936, when his blood count showed: haemoglobin, 52 per cent.; red cells, 1,900,000 per c.mm.; colour index, 1.3; white cells, 4,900; and a normal differential count. He was given pernaemon forte 4 c.cm. each fortnight and was making satisfactory progress, his blood count in February, 1937, being: haemoglobin, 95 per cent.; red cells, 4,800,000 per c.mm.; colour index, 1. For eighteen months he had been complaining of paraesthesiae of the feet, but there was no weakness, and no physical signs of cord involvement had ever been elicited. The urine had always been normal.

He was one of a family of seven, five of whom were alive and well. One sister had been admitted to hospital three months previously suffering from simple achlorhydric anaemia. Her blood count on admission was: haemoglobin, 25 per cent.; red cells, 1,600,000 per c.mm.; colour index, 0.8; white cells, 9,300; normal differential count. The gastric contents showed complete achlorhydria both to fractional and to histamine test meals, and the Wassermann reaction was negative. She was treated with blood transfusion and massive doses of iron, and was discharged, greatly improved, after three months' treatment, when the blood count was: haemoglobin, 75 per cent.; red cells, 5,000,000 per c.mm.; colour index, 0.75; white cells and differential count normal. The father had died at the age of 69 from heart trouble and dropsy; the mother was alive, aged 74, and suffered from simple goitre.

On March 16 the patient reported at the out-patient department complaining of the sudden onset of thirst and polyuria ten days previously. During this short period he had become very weak, had noticed increasing dyspnoea and giddiness on exertion, and had lost considerable weight. He was unable to eat owing to the dryness of his mouth, in spite of the fact that he was very hungry, and had found that his vision was becoming misty and his voice husky. On examination he looked ill and dazed, and he staggered slightly when walking. His temperature was 98.4° and his pulse rate 60. The physical examination was negative. There was no smell of acetone in the breath, but the urine was loaded with sugar and ketone bodies.

On admission to the ward his urine was found to contain 12 per cent. of sugar, his blood sugar was 716 mg. per 100 c.cm. (his last meal having been two hours previously), and his blood count was: haemoglobin, 80 per cent.; red cells, 3,500,000 per c.mm.; colour index, 1.4.

During the first twenty-four hours in hospital he received 240 units of insulin and 240 grammes of glucose. Thereafter he was treated with a diet containing 140 grammes of carbohydrate and 50 units of insulin daily; he also received 2 c.cm. of campolin every other day. Subsequently it was found possible to reduce the daily amount of insulin in a step-like manner until six weeks later his urine remained sugar- and acetone-free without insulin, and his sugar tolerance was within normal limits. He was discharged on May 4 with a blood count of: haemoglobin, 82 per cent.; red cells, 3,960,000 per c.mm.; colour index, 1.03. He was feeling remarkably well, and had put on one stone in weight.

While he was in hospital it was found that the gastric contents contained no free hydrochloric acid during a histamine test meal. Blood examination showed a sedimentation rate of 27 mm. in one hour (Wintrobe's method); haematocrit test 40 per cent.; corrected sedimentation rate 19 mm.; cell volume index 1.06; plasma cholesterol 164 mg. per 100 c.cm.; Wassermann reaction negative. The increased sedimentation rate remained unexplained.

The second case is less clear-cut, in that the condition of the patient whilst in hospital provided no opportunity for performing a test meal. The presence of achlorhydria, therefore, was never proved. Nor was any family history available. There are, however, enough facts to make the case worth recording if only to illustrate the onset of the diseases in the reverse order.

Case II

A retired nurse, aged 70, was known to have been a mild diabetic for at least a year. She had been in the habit of taking 20 units of insulin by injection night and morning, and of living on a slightly reduced carbohydrate diet. On this regime she had maintained comparatively good health, and her urine had only occasionally shown slight reduction of Benedict's solution.

On October 3, 1932, she was admitted to hospital complaining of increasing pallor, glycosuria, and thirst during the previous three weeks. She looked ill, and was dull and drowsy. Her mucous membranes were pale, her pulse 100 and weak, and her respirations rapid. A blood count showed: haemoglobin, 34 per cent.; red cells, 1,480,000 per c.mm.; colour index, 1.2; white cells, 3,600; and a normal differential count. The red cells showed anisocytosis and poikilocytosis, and both normoblasts and megaloblasts were seen. The average diameter of red cells by Pijper's method was 8.6 μ, and the Price-Jones curve showed the typical shift to the right. The blood sugar was 500 mg. per 100 c.cm.; the urine contained 3 per cent. of sugar and much diacetic acid.

During the twenty-four hours following her admission she received in all 170 units of insulin and 170 grammes of sugar. She was taking fluids and passing urine well, and looked and felt better. Considerable difficulty was experienced in stabilizing her diabetes, and her blood sugar varied rapidly between 60 and 370 mg. per 100 c.cm. During the next fourteen days, however, she was given 30 units of insulin daily, and her general condition improved considerably.

Shortly after admission she received a blood transfusion of 100 c.cm. and half a pint of gum saline intravenously, and thereafter one tube of liver extract and one phial of ventriculin were given daily. Three weeks after her admission her blood count was: haemoglobin, 40 per cent.; red cells, 1,315,000 per c.mm.; colour index, 1.5; and white cells 9,400.

Twenty-three days after admission she suddenly became ill with pulmonary congestion and died a few hours later.

Discussion

That diabetes and pernicious anaemia are sometimes found in association has often been remarked, and inquiry into the subject covers a period of twenty-six years. The best reviews of published cases are by Root in 1931 and again in 1933, and by Watson in 1933. Since then, however, few authors have written about it—Benjamin in 1934, Jolliffe, Brandaleone, and Most in 1935, and one or two more.

The first published report was by Parkinson as recently as 1910. He described the case of a man, aged 49, with pernicious anaemia who developed glycosuria, ketosis, and coma, terminating in death. At necropsy the characteristic findings of pernicious anaemia were disclosed. The pancreas was normal macroscopically and microscopically. Chvostek in 1918 was the next to describe a patient with both conditions, and in 1923 Giffen and Bowler alluded to two more in a paper reviewing the diseases that might be associated with pernicious anaemia. Two further cases were reported by Adams in 1925.

In 1931 Root made the first collection, which consisted of forty-eight cases: other reports followed, and in 1933 he collected another series of thirty-one. In the same year Watson added three more case histories and published an excellent review with a summary of the literature, and it is probable that at the time of the publication of this paper the total number of cases of combined diabetes and pernicious anaemia on record was seventy-nine.

That two so entirely different conditions should often be found in association is most remarkable, and frequent attempts have been made to discover a relation between them. The task, however, has not been easy, partly because of the difficulty of deciding which is the primary disease and which the complicating one, and partly because the incidence of the combination varies in different series of cases of diabetes and pernicious anaemia. There are, however, certain conditions common to both which might predispose to their simultaneous occurrence; and certain facts are known about alterations in carbohydrate metabolism in anaemic states which must also be taken into consideration.

The Primary Disease and the Complicating Disease

A point about which there is no clarity is whether the diabetes should be considered as a complication of the anaemia or vice versa. In Case I above the pernicious anaemia was known to have preceded the diabetes; in Case II it was probably the reverse; and in the majority of reported cases it was the diabetes that developed first. In two of Watson's cases the time of onset of the pernicious anaemia could not be stated with certainty as paraesthesiae were noted in the history before anaemia was suspected, and mild anaemia might have been present before the diabetes developed or before either disease was discovered. In one at least of Root's cases achlorhydria was found before any sign of anaemia.

Frequency

Some idea of the frequency of the association can be gained from various writers, but it varies in different series.

1. Watson found that in 949 diabetic patients of 25 years of age and over admitted to the Deaconess Hospital during the twelve months ending June 1, 1932, ten cases of pernicious anaemia occurred (1.05 per cent.).

2. Murphy and Moxon in 827 diabetics saw three cases of pernicious anaemia (0.36 per cent.).

3. In 370 cases of pernicious anaemia Wilkinson had four diabetics (1.05 per cent.).

4. The association was found in fifteen in a combined series of 2,461 patients with pernicious anaemia (0.61 per cent.) (Adams, Giffen and Bowler, Goudsmit, Joslin, Murphy and Moxon, Wright, and Wilkinson).

These figures are certainly suggestive of something more than chance, but no more than suggestive.

Factors Predisposing to Combined Incidence

Root has indicated some factors which may predispose to a more frequent combined incidence.

1. Achlorhydria is of fundamental significance in pernicious anaemia and often occurs in diabetes. The latter fact is perhaps not fully appreciated, but according to evidence adduced by Bowen and Aaron, Curtis, Ingram, Mason, Rabinowitch *et al.*, and Wohl, diminished or absent gastric hydrochloric acid occurs in 30 to 40 per cent. of diabetics. Hartfall found three diabetics among 336 cases of achlorhydria. This might prove to be a common aetiological basis.

2. The longer duration of life brought about by improved treatment might render a sufferer from one disease more likely to contract the other. It appears that the tendency to the development of defective gastric secretion increases with the duration of the diabetes and with the age of the patient. Since, moreover, the diabetes antedates the pernicious anaemia in most of the cases there appears to be some justification for regarding diabetics, in virtue of their prolonged existence, as more prone to develop pernicious anaemia.

3. The age factor.—No case has been observed in a young person. All occurred during the age period which is usual for the onset of pernicious anaemia and which includes the age most common for the development of diabetes.

4. Hereditary tendencies.—The familial tendency is well recognized in both diseases, and in one of the above reports the occurrence of a sister with achlorhydria and microcytic anaemia is a case in point.

Though these factors are common to both diseases, especially where diabetes is the primary condition, there still remain those cases where pernicious anaemia was the first to develop. In the latter circumstance certain changes in carbohydrate metabolism that are known to occur in anaemia seem more likely to be the agents which lead to the double pathology.

Conditions Favouring Development of Diabetes in Pernicious Anaemia

Davidson and Gulland, for instance, found some evidence that the achlorhydric stomach of pernicious anaemia empties rapidly, and in 1929 MacCullum suggested a hormone in the intestinal mucosa, formed under the stimulus of sugar, which controls the secretion of insulin. Since pernicious anaemia is a deficiency disease, other deficiencies of this nature possibly coexist.

Again, disturbance of sugar metabolism has many times been reported as a result of anaemia. As early as 1877 Claude Bernard produced hyperglycaemia in dogs by repeated bleedings. Strauss reported an increased excretion of sugar in diabetics following venesection. Isaac and Hendrick found the blood sugar raised in pernicious anaemia, and Johnsson thought that the height of the blood sugar was related to the severity of the anaemia. In the same year, however, Blumenthal and Neuburger could find no definitely characteristic change and no connexion between the severity of the anaemia and the blood-sugar level. If it is true that changes in sugar metabolism of this nature occur as a result of anaemia, then it is quite conceivable that this fact has some bearing on the question of diabetes complicating pernicious anaemia. But a criticism that immediately comes to mind is that there is no evidence that the diabetes in all these cases developed during an anaemic phase. It certainly did not in the one reported above.

Finally, in 1929 Blotner and Murphy announced a blood-sugar-lowering effect following the oral administration of liver, though here again there has been no confirmation by other workers. Recently, however, Jolliffe, Brandaleone, and Most have reported changes in carbohydrate tolerance produced by high protein diets in two cases with the combined diseases.

Evidence, therefore, is contradictory, and no adequate explanation has yet been offered regarding on the one hand the mechanism of production of high blood sugar and abnormal sugar tolerance in pernicious anaemia, nor on the other the occasional occurrence of pernicious anaemia complicating diabetes. It is true that there is a certain amount of common ground between them, yet it appears that the only rational attitude is the one adopted by most authors—namely, that the phenomenon is a chance combination.

Summary

1. Two cases of combined pernicious anaemia and diabetes mellitus are described.

2. The history of knowledge concerning this association of diseases is given and the theories that have been put forward in explanation are discussed.

3. From a study of the literature no actual proof of aetiological relation is available.

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Clinical Memoranda

A Case of Pubertas Praecox

The extreme rarity of this condition and the scantiness of the literature on the subject have led to its frequent confusion with adrenal virilism or pseudo-hermaphroditism.

The patient is a girl aged 6 years 10 months. She is the first of a family of three. The mother was quite well during pregnancy, but the labour was prolonged and forceps had to be used. The birth weight was 10 lb. The child had pneumonia at 3 years, followed by otitis media. Paracentesis of both drums was performed. Since then she has had otorrhoea on and off. There have been no other childish diseases. The family history shows nothing abnormal. Her sister is 4½ years and her brother 3½ years old; both are normal.

The child's progress since birth has been precocious. The first tooth erupted at 4 months; she walked quite well at 11 months, and looked like a child of 3 years at 18 months. Her appetite has always been voracious. At 3½ years of age she began to menstruate. Menstruation occurred four times in a year, each time lasting one or two days. There was no dysmenorrhoea. There was no menstrual period between 4½ and 5½ years of age, but menstruation occurred again at 5 years 9 months. Another year passed before the next period at 6 years 9 months. This time it lasted three days, with headache and some lower abdominal pain.

The child has been under observation for the past fifteen months, and during that period she has suffered from several attacks of pyrexia up to 103° F., which were attributed to a chill. There has been headache during these attacks, but no vomiting. Headache has been a feature of the case, especially when the child indulges in strenuous exercise—for example, drill at school.

PHYSICAL EXAMINATION

Her appearance is that of a well-developed girl of 12 to 14 years. There is marked premature development of the feminine form, with enlargement of the mammary glands, female configuration of the hips, prominence of the mons veneris, on which there is some fine dark hair. The external genitals are of the female type with no enlargement of the clitoris. The abdomen protrudes and there is some lordosis.

The following are some of her measurements: Height, 53¾ inches—that is, she is eleven inches taller than a normal child of her age. Weight, 74 lb. (26 lb. heavier than the normal child). Head, 21 inches; chest (over the breasts), 26¼ inches; abdomen, 24 inches; and hips (over greater trochanters), 28½ inches. The child has gained 2½ inches in height and 10 lb. in weight during the last fifteen months.

Examination showed the following results: Heart, normal; blood pressure, 115/60; central nervous system, normal; eye movement normal in all directions; optic disks, normal. The liver, spleen, and kidneys were not palpable, and there was no appreciable disease. The cervix uteri is well developed and the uterus, on bimanual examination, was found to be almost adult size. No enlargement of the uterine appendages could be detected. The urine, which was acid, had a specific gravity of 1015 and contained no albumin or sugar. The skull was radiographed with especial reference to the pineal gland, but proved normal.

There is nothing very remarkable in her personality, except that her ideas are rather more mature than those of a child of her age. Her mental age is normal: there is certainly no evidence of retarded mental function.

DISCUSSION

It might not be out of place here to make a few remarks on the factors differentiating this condition from adrenal virilism. In adrenal virilism occurring in girls before puberty the configuration of the body approaches the male type: the voice deepens, hirsuties is a feature of the disease, and the hair is of male distribution. The external genital organs show precocious development with marked hypertrophy of the clitoris. The uterus is not enlarged and there is no menstrual bleeding. The mammary glands are not developed—in fact, failure of their development is more usual.

The most likely diagnosis in this case would be pineal syndrome due to neoplasm or hyperplasia of the pineal gland.

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Agranulocytic Angina following Bismuth Injections in a Case of Syphilis

The interesting features of this case, which closely resembles reported cases of agranulocytosis, are its association with bismuth (only 8 grains in all were given) which in itself has a tendency to produce stomatitis, and possibly with syphilis. The absence, however, of any blue pigmentation in the mouth, of casts, or of any appreciable amount of albumin in the urine, and the sudden onset of the condition, differentiate the case from one of simple bismuth poisoning, of which I have seen several instances, but it suggests that perhaps bismuth may be able to precipitate agranulocytosis in the same way as does amidopyrine, which was not a factor in this case.

CASE REPORT

The patient, a native male adult employed on the Roan Antelope Copper Mine, was admitted to hospital on account of infective syphilis, having a primary chancre with a 4 plus Kahn reaction. His urine and gums, examined before treatment began, were normal, and he was otherwise healthy.

On January 16, 1936, 10 minims of bismostab (Boots), containing 2 grains of metallic bismuth in suspension, were injected into the muscles of the buttocks, the bottle of bismostab being well shaken up before drawing off the dose, and a needle first inserted alone into the muscle to avoid the possibility of injecting into the vein. The same dose was injected similarly at weekly intervals for three weeks, no additional treatment being given. Urine taken at the time of the last injection, February 7, was normal, and the gums then showed no trace of pigmentation or ulceration.

His temperature, which for the four previous weeks had not risen above normal, suddenly rose on February 12 to 105° F., and was maintained between 100° and 105° F. till his death. At the onset he complained only of a sore throat and a dry cough, and on examination showed some enlargement of the tonsils with slight general injection of the pharynx. A relative lymphocytosis was noted in a blood smear taken at this time.

On the 14th small superficial ulcers were observed along the outer margin of the right gums with no associated hyperaemia, and after a further two days these had developed into extensive yellowish-white sloughs. No pigmentation was present and there was still no hyperaemia. A blood examination now revealed a complete absence of neutrophils and eosinophils. The haemoglobin was 81 per cent., the colour index 0.96, and the erythrocytes 4,290,000 per c.mm. The leucocytes numbered 3,800 per c.mm., 83 per cent. being lymphocytes and 17 per cent. monocytes. His urine was acid, with a specific gravity of 1026, and contained only a trace of albumin.

The following day, February 17, the sloughs were more extensive and the patient's general condition worse; his tongue was coated with a dry brown fur, and a marked icteric tinting of the conjunctiva was noted. A blood count now showed: haemoglobin 70 per cent.; colour index 0.97; erythrocytes 3,600,000—some anisocytosis present; leucocytes 2,200 per c.mm. (monocytes 21 per cent. and lymphocytes 79 per cent.). Neutrophils and eosinophils were still absent. On February 18 a few neutrophils (stab forms) and eosinophils appeared in the blood. The haemoglobin was 70 per cent., the colour index 1.0, and the erythrocytes 3,560,000 per c.mm. The leucocytes numbered 2,300 per c.mm., and consisted of neutrophils (stab form) 1 per cent., eosinophils 1 per cent., monocytes 18 per cent., and lymphocytes 80 per cent.

The patient died on February 20, eight days after the onset of his illness. A post-mortem examination showed marked pallor of the bone marrow at the ends of the tibia and femur. The liver and spleen were enlarged, but firm and of normal appearance on cutting. This enlargement was probably due to chronic malaria. The remaining organs appeared normal apart from a yellow coloration due to the jaundice.

No specific treatment had been used in this case, as no nucleic acid preparation was obtainable locally, and the patient died before any could be procured. Mouth washes of potassium chlorate and carbolic acid and, later, swabbing of the gums with hydrogen peroxide were employed, along with a daily saline aperient.

I should like to express my gratitude to Mr. R. B. English of Luanshya for laboratory investigations, the most important feature in the diagnosis.

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Skin Diphtheria Associated with Clinical Diphtheria and Scarlet Fever

I think that the case recorded below may have some interest from the point of view of both clinical and preventive medicine.

CLINICAL RECORD

Two little boys contracted scarlet fever and were sent to hospital. Four days after they had been allowed home their father reported that two other children were ill, and that one of them had a rash. These children also were found to have scarlet fever, and were sent to hospital. The father complained casually that he himself had sore throat, headache, and loss of appetite, and had not been able to sleep. When examined he had a circular patch of membrane on an inflamed tonsil, a temperature of 100°, and a pulse of 120. He was sent to bed and a dry swab was taken. The membrane was loosely adherent, and there were no bleeding spots where it had been detached by the swab. Serum was at first withheld pending the result of examination of the swab. Next day, however, the membrane had re-formed and had spread to the opposite tonsil and involved the uvula. The patient felt and looked much more ill, and 12,000 units of antitoxin were given intramuscularly. The following day the throat had cleared up considerably, and the patient was much improved, having had a comfortable night.

One of the children who had been discharged after scarlet fever was noticed to have a moist dermatitis at the back of the ear, and further search revealed a similar patch in the axilla. A dry swab was taken from the axilla, and a report asked for as to the existence of diphtheria bacilli and for haemolytic streptococci.

BACTERIOLOGICAL REPORT

The reports on the swabs were as follows:

Child's Axilla.—Bacilli similar to *B. diphtheriae*, both in morphological and in staining properties, were observed. A few isolated cocci were also present.

Father's Throat.—Organisms similar to *B. diphtheriae* in morphology were present in culture from this swab. Some of their staining characteristics were not quite typical, but they must be regarded with suspicion. A blood-agar plate culture showed numerous streptococci of the α-haemolytic type, but only an occasional β-haemolytic colony. Scarlet fever streptococci conform to the latter type in appearance, but one would have expected a much higher yield of these organisms from a clinical case of scarlet fever.

COMMENTARY

In view of the clinical behaviour of the case and the speedy response to serum treatment there would appear to be no reasonable doubt but that the case was one of diphtheria.

Skin diphtheria has been reported occasionally, but its occurrence does not seem to have attracted the notice it deserves. Over twenty years ago Dr. J. D. Rolleston (1916) recorded the case of a boy with multiple whitlows which had existed for over two months but which healed within a week after a positive swab had been found and serum given. Dr. C. O. Stallybrass (1936), influenced, he says, by observation of Professor Bu's findings in Copenhagen, suggested that school doctors and skin specialists should take swabs at random in cases of "impetigo" and facial "eczema," and the result was that "we were rewarded by a plentiful crop of cases of nasal diphtheria."

Damon in 1934 reported a case of pustular eruption on the face, which spread rapidly to chin and forehead and resembled impetigo. The temperature varied from 99.8° to 101° F. and the pulse from 108 to 130. A pure culture of diphtheria bacilli of a virulent type was found. The patient improved and got well immediately antitoxin was given. It is noteworthy that Damon reports that no bacilli could be isolated from the throat or posterior nares although repeated cultures were made.

It may well be that those epidemics of impetigo (1914) with a high mortality reported at times were in reality outbreaks of skin diphtheria. That only streptococci and staphylococci were isolated hardly excludes the possibility of diphtheria in view of the very diverse experiences of the value of the swab in diagnosis. In this connexion readers will recall a prolonged discussion on the swab in the columns of this *Journal* about two years ago.

It is of interest to note that the skin lesion now reported cleared up rapidly on the application of ung. hydrarg. nit. dil.—one of the commonest ointments used in impetigo.

The part played by skin diphtheria in producing adult and herd immunity, and in starting epidemics of diphtheria, may be worthy of further study.

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Reviews

ENCYCLOPAEDIA OF MEDICAL PRACTICE VOL. IV

The British Encyclopaedia of Medical Practice, including Medicine, Surgery, Obstetrics, Gynaecology, and other Subjects. Volume 4, *Diarrhoea to Endoscopy of the Rectum.* Under the general Editorship of Sir Humphry Rolleston, Bt., G.C.V.O., M.D. (Pp. 600; illustrated. 35s. net.) London: Butterworth and Co. (Publishers), Ltd. 1937.

The volumes of the new Encyclopaedia of British medicine continue to appear at regular intervals, the fourth one of the series, now before us, covering the subjects diarrhoea–endoscopy. Prominent among these is the consideration of dislocations, fractures, and associated injuries admirably set out for the help of the general practitioner by Professor G. R. Girdlestone. Since the war, deriving from the multiple injuries of gunshot wounds and the subsequent experience with road accidents, the modern technique in the treatment of fractures has reached a high standard. Professor Girdlestone approaches the subject by a brief reference to first aid, discusses the general principles of diagnosis, reduction and fixation apparatus, and then deals regionally with particular fractures and dislocations. From the standpoint of efficiency there is much to be said for getting the patient as soon as possible to a hospital with a fracture service, but the practitioner who is called in to render first aid in case of accident must undertake not only the support of the patient but must be trained to deal with the situation so as to minimize further damage to tissues and to place the injured part in such a position as rapidly to facilitate repair. In a compact discussion of the subject Professor Girdlestone has in seventy pages managed to get in the essentials, and this section should be most helpful.

Among the disorders of digestion dealt with are the general causes and clinical aspects of diarrhoea by Sir Arthur Hurst, diarrhoea occurring in infancy and childhood by Dr. R. W. B. Ellis, and tropical forms of diarrhoea associated with flagellate infections and so-called hill diarrhoea by Dr. Hamilton Fairley. The aetiology of infantile summer diarrhoea in England appears still to be obscure. An infective organism has been demonstrated in far fewer cases than in the United States, on the Continent, or in Australia, and physicians are led to postulate environmental, dietetic, or allergic states. It should be possible to differentiate further the clinical aspects of these groups, so that indications for treatment may be more readily set out. Approaching the subject from the other side, Major-General Perry and Lieut.-Colonel Biggam are on more solid ground in dealing with the aetiology of bacillary dysentery. Here the bacteriology has largely been worked out, and the clinical aspects of the various groups are becoming differentiated. There are, however, still considerable difficulties in producing specific sera for therapy, except in the case of the Shiga bacillus, for which an effective antitoxin can be prepared. A full treatment of the subject of diverticulosis and diverticulitis of the colon by Sir Edmund Spriggs and Mr. O. A. Marxer, an introduction to dyspepsia by Dr. Robert Hutchison, and a discussion of the special characters of carbohydrate intestinal dyspepsia by Sir Arthur Hurst complete a highly instructive series of articles on disorders of digestion.

Dr. Comrie introduces the subject of diet in treatment with a general statement of the food requirements of the body under physiological conditions, and discusses the various systems of diet advocated or adopted. These subjects are so much talked of by patients that practitioners will be grateful for the succinct accounts of diets and the indications for their use, together with material for refuting false or exaggerated claims. In a scholarly article Dr. Helen Mackay brings forward the main facts of diseases due to dietetic deficiency. Throughout the world dietetic deficiencies are prevalent, mostly from necessity but sometimes through ignorance. Certain deficiencies are known to be common in British diets, iron, for instance, and probably often calcium, phosphorus, and vitamin D in many parts of the community. Besides gross disease due to deficiency there is probably much disability or ill-health obscurely brought about in this way.

An interesting series deals with electricity and medicine. Dr. Cumberbatch discusses electrodiagnosis, and the special form of treatment with diathermy; and Dr. Heald electrotherapy in general. Emphysema of the lungs and empyema by Dr. R. V. Christie and Mr. Tudor Edwards respectively represent the medical and surgical aspects of respiratory disease in this volume, while Dr. Christie also writes a good study of dyspnoea. Other disabilities are dysphagia and dysphonia from the pen of Mr. Lionel Colledge, who contributes the section on ear diseases; dysmenorrhoea and dyspareunia by Mr. Eardley Holland, whose understanding articles will be very helpful to practitioners so often called to deal with these matters; while the clinical aspects of drug eruptions will be less puzzling when Dr. R. T. Brain's contribution to the subject is studied. Nervous diseases include disseminated sclerosis by Drs. F. M. R. Walshe and J. G. Greenfield, diplopia by Mr. P. G. Doyne, and encephalomyelitis and epidemic encephalitis by Dr. W. G. Wyllie.

Dr. Gardiner Hill's account of dwarfism and infantilism is well documented and up to date, and the disorders of the uterine mucous membrane are discussed from the pathological and clinical aspects by Professor M. J. Stewart and Drs. A. M. Claye and James Young. Other articles contribute to a very useful volume. The editing and printing are praiseworthy, but a comparison of radiographs would point to the desirability, for clarity and precision, of using special paper.

CHRONIC RHEUMATISM

Chronic Rheumatic Diseases. Edited by C. W. Buckley, M.D., F.R.C.P. Being the third Annual Report of the British Committee on Chronic Rheumatic Diseases appointed by the Royal College of Physicians. No. 3. (Pp. 142. 10s. 6d. net.) London: H. K. Lewis and Co. 1937.

The third volume of the Reports on Chronic Rheumatic Diseases is welcome, for, as Professor Fraser says in the foreword, this and the first two volumes offer the student as complete a survey of recent work on chronic rheumatism as he is likely to find anywhere. In the opening article Professor Okell throws grave doubt on the fundamental justification for vaccine therapy in these diseases —a view that may be regarded as unduly pessimistic by some but is a seasonable corrective to those who are wont to regard the rheumatic patient as a never sufficiently filled receptacle for injections. Professor Learmonth writes a review of recent work on sympathectomy in rheumatoid arthritis, and points out that in carefully selected cases it may be a useful symptomatic measure for the relief of pain but that it should never be regarded as in any sense a specific remedy for the disease.

Kahlmeter gives a most useful review of his own and others' experience of *x*-ray therapy and thinks highly of its use, especially in gonorrhoeal and septic arthritis, in bursitis, and tendinitis. Race gives a valuable survey of the theories advanced as to deficiency of vitamins as a causative agency in arthritis. In the rheumatoid type a deficiency of A and C and possibly of B_2 is not uncommon, but whether this deficiency is causal or not still remains non-proven. Collins describes two unusual cases of rheumatoid arthritis with a neutrophil leucopenia and enlargement of the liver and spleen, and discusses them in relation to the leucocyte counts commonly met with in chronic rheumatism.

Several critical reviews are given of recent work, of which the most valuable is that on chrysotherapy. There can be no doubt that gold properly administered is a promising and useful remedy, but still greater trial is necessary to clarify the correct dosage and suitable selection of cases, while it is obvious that this is a very dangerous weapon in inexperienced hands. Hench supplies a long review, with a full bibliography of American literature on arthritis. The most interesting feature of this is the work on pyrexial treatment of gonorrhoeal arthritis, which seems almost specific in the early stages and helpful even in later stages. Jennings draws attention to the neglected use of sodium salicylate in the treatment of gout, especially in the interval periods, when it rivals cinchophen in the power of increasing the elimination of uric acid and is much less dangerous. Finally, abstracts and reviews of the principal Continental literature of the year are supplied by Drs. Bach and Pether.

It may be complained that there is nothing very original in this report, but Sir Humphry Rolleston and his committee deserve congratulations on keeping those who are interested fully abreast of all that is happening in the domain of chronic rheumatism.

THE PSYCHOTHERAPY OF NEUROSIS

The Common Neuroses. Their Treatment by Psychotherapy. An Introduction to Psychological Treatment for Students and Practitioners. By T. A. Ross, M.D., F.R.C.P. Second edition. (Pp. 236. 10s. 6d. net.) London: E. Arnold and Co. 1937.

Dr. Ross brought out the first edition of this valuable textbook at a time when psychotherapy was comparatively little known in this country.[1] The second edition has appeared in response to a demand by the hundreds of medical men and women who have now undertaken or are undertaking this difficult and elusive work for some sort of guide to its perplexities. Seventeen years ago the author wrote in his preface that in his opinion most patients suffering from neurosis could be treated by general practitioners. It is very interesting to read that he has found no reason to change his mind. He points out, however, a fact of which no general practitioner should ever lose sight: that there is a residue which the general practitioner would be well advised not to touch. Most neurotics, he says, are not difficult to cure, but some may be made very much worse. He has therefore attempted to describe the cases which the general practitioner ought to leave alone, but urges him to contribute his share of psychotherapeutic treatment to a world which is being progressively invaded by neurosis. He has left out his original chapter on the application of the Freudian method, feeling that this subject can only be properly dealt with by a Freudian. The views Dr. Ross expressed in his first edition remain substantially the same, but he has added many examples which illustrate principles.

[1] *British Medical Journal*, 1923, **2**, 327.

BONE PRODUCTION AND BONE GROWTH

The Role of Chemiotaxis in Bone Growth. By A. P. Bertwistle, M.B., Ch.B., F.R.C.S.Ed. (Pp. 59; 32 illustrations. 8s. 6d. net.) London: Henry Kimpton. 1937.

Bone production and bone growth are fascinating problems which have aroused much interest recently, and so this monograph cannot but attract attention. The author states that the object of the book is "to describe disruptive chemiotaxis, a new process to Medicine, and to lay down a law which, based on histological grounds, will be found to cover the whole field of bone pathology, viz.: that whenever young fibrous tissue, particularly young blood vessels, come into contact with bone or a calcified deposit, new bone formation occurs." Disruptive chemiotaxis, he tells us, is a term coined to express the power of certain hard substances of attracting and drawing into themselves certain soft, living structures. We do not feel that we can congratulate the coiner on this addition to an overburdened nomenclature, while we search in vain for some new insight into the nature of the process whereby developing structures follow particular pathways in relation to their environment.

Mr. Bertwistle's little book consists of six chapters, a bibliography of some seventy-five references, and an index. It is illustrated by thirty-two figures, the majority of which are from prints of *x*-ray photographs. These are for the most part clear and well reproduced. Fig. 24, described as periosteal sarcoma, in a recent work such as this might in conformity with modern surgical pathological nomenclature be better designated osteogenic sarcoma, while some would also have preferred to see the term myeloma (p. 33) replaced by osteoclastoma. The manufacturers of "elastoplast" will be pleased to note the statement on page 32.

A real advance in our knowledge of bone pathology was made when Leriche and other observers emphasized the fact that bone density varies inversely as its blood supply, but whether anything is to be gained by applying the term disruptive chemiotaxis to the rarefaction which takes place in a bone graft is doubtful. The book contains an interesting account of the histology and development of bone, of the functions ascribed by various workers to the periosteum, and of the various views regarding ectopic bone formation.

RADIUM THERAPY

Traite Pratique de Curiethérapie. Généralités sur le Radium et sur la Curiethérapie du Cancer. By P. Degrais and A. Bellot. (Pp. 160; 36 figures. 36 fr.) Paris: J. B. Baillière et Fils. 1937.

One of the most recent additions to the literature dealing with the clinical uses of radium is the Practical Treatise on Curietherapy by Dr. Degrais and M. Bellot. The former of these writers is well known to English readers as having collaborated with the late Dr. Wickham in the first systematic treatise on radium therapy, which was published in 1908 and translated into English by Dr. S. E. Dore. The present work is to be completed in four volumes of about 150 to 180 pages each. The first deals with the physics of radioactivity, the construction and use of apparatus, the biological action of the rays, and the general principles upon which the radium treatment of malignant disease is based. It may be noted in passing that the term "curietherapy" was introduced by Degrais in 1919 to denote treatment by radium as distinct from *x* rays. Since these methods are so often combined the comprehensive term "radiotherapy" is used, especially in this country, to include both these methods of treatment.

The three remaining volumes of the present work will deal with the use of radium in the treatment of cancer in various situations, the gynaecological uses of radium in non-malignant conditions, and lastly with its dermatological applications. The general principles, which form the subject-matter of the first volume, are clearly and concisely set forth, while the illustrations in the sections dealing with apparatus are clear and informative. These indeed are the only illustrations in the book, and we think the authors have done wisely in omitting them from the sections on the biological actions of radiation. The histological changes set up by the action of radium or *x* rays need to be studied at first hand in the laboratory. In discussing the biological effects of radiation the authors maintain that β rays, so far from only having an indiscriminate caustic effect, have, under proper conditions of dosage, a selective action in the same way as the γ rays. For this reason they advocate the retention of β radiation in the treatment of cutaneous lesions, a matter which is to be dealt with in the concluding volume.

Judging from the first volume, we can cordially recommend this treatise as a clear and concise textbook for those training to become radiotherapists.

Notes on Books

Professor ROSCOE R. HYDE, who directs the laboratories of immunology and filterable viruses in the School of Hygiene at Johns Hopkins University, has written a small book entitled a *Laboratory Outline in Filterable Viruses* the aim of which is to guide the practical work of the student. It is divided into two parts. The first comprises those exercises designed to instruct the student in the nature and behaviour of viruses, while the second part is concerned with the histopathology of virus diseases. Presumably this book is intended primarily for those attending the course of virus study in Professor Hyde's department, and for this purpose it is probably adequate. But it is unlikely to prove of use to students elsewhere because it lacks much of the detail necessary to their instruction and guidance. So much is this so that in many places the book is little more than a syllabus of the practical exercises that the student is to carry out. In fairness to the author, however, it should be pointed out that this omission of detail is deliberate, its object being to encourage the student, under direction, to supply this for himself. The book is published in this country by Macmillan and Co. at 7s. 6d.

For the seventh edition of his *Gynaecology for Nurses and Gynaecological Nursing*, first published in 1910, Sir COMYNS BERKELEY has largely rewritten the text and in various directions brought the subject-matter up to date. He has also inserted between brackets at the end of the appropriate section the question or questions relating thereto set in the final examinations of the General Nursing Council. The publishers are Faber and Faber, and the price is 7s. 6d.

Recent developments in the treatment of tuberculosis have made it more rather than less difficult to assess correctly the part played by climatic factors. A swing of the pendulum has nowadays perhaps led to underestimation of their importance. In the little work entitled *Die klimatische Behandlung der Tuberkulose und ihre heutige Bewertung* (Berlin, Julius Springer, RM. 1.80) Professor A. BACMEISTER discusses in somewhat vague terms the beneficial effect of climate and altitude on the various forms of the disease. His arguments are not very convincing, and the main object of the paper appears to be to attract the attention of practitioners in Germany to the variety of climatological possibilities for the treatment of tuberculosis in that country.

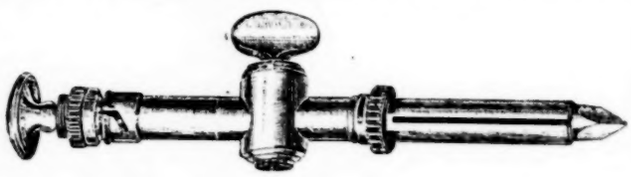
Preparations and Appliances

TROCAR AND CANNULA FOR CLOSED DRAINAGE OF CHEST

Mr. JOHN T. MORRISON, F.R.C.S. (Liverpool) writes:

The instrument about to be described was made for me by the Genito-Urinary Manufacturing Company, who have kindly provided the attached technical description. It has been gradually devised to facilitate the provision of closed intercostal drainage in cases of empyema, both acute and chronic, the advantages of which over open drainage, in the early stage of treatment at least, require no comment.

The instrument consists of a cannula provided with a stopcock and stuffing box. Two lateral slots are cut in the lower section of the cannula each 2 mm. wide and 53 mm. long. A rotary sleeve with corresponding slots is fitted over the cannula acting as a shutter. The rotary movement of the sleeve is limited by a stopping pin which brings the slots in the



cannula and those in the rotating sleeve into apposition. At the upper end of the instrument a detachable stuffing box prevents the entrance of air during withdrawal of the trocar point. When the trocar point is withdrawn until it comes to rest against the stuffing box the stopcock can be closed and the stuffing box with trocar detached from the cannula.

With local anaesthesia directed particularly to the extrapleural tissues and the edges of the ribs bounding the chosen space, the trocar and cannula is inserted through a short incision with a semi-rotatory movement till it is felt to enter the pleura, the lateral slot being closed. The trocar is now withdrawn, the stopcock shut, and the stuffing box removed. A rubber drainage tube with terminal lateral eye, previously chosen to fit the lumen of the cannula exactly, is inserted and, as the stopcock is opened, pushed down till it reaches a marked point indicating that it has reached the pleura. If there is difficulty in doing so the trocar is reinserted and the instrument pushed a little further in. The end of the drain is now opened under water to ensure that pus is flowing, and then re-closed with a suitable spigot. The sleeve on the cannula is rotated so as to open the slot and a fine bayonet-pointed needle picking up skin *en route* transfixes the drain through the opened slot. This needle may now be held firmly against the chest wall, ensuring that the drain remains exactly where placed in the chest, during withdrawal of the cannula. The needle is then removed and the drain fixed in position *secundum artem*. The object of the sleeve, which keeps the slot closed until a drain is in place to convey pus directly to the exterior, is to prevent the leakage of pus and possible entrance of air which would take place if the slot was permanently open. The illustration is approximately half scale.

CITRATED FERROUS CHLORIDE

Tabloid ferrous chloride citrated (Messrs. Burroughs Wellcome and Co.) is a ferrous preparation which is claimed to resist oxidation and deliquescence under all climatic conditions. The tabloids contain 3 grains of the compound and are sugar coated.

Ferrous salts are in many ways the most satisfactory means of administering iron. Unfortunately most ferrous preparations oxidize on prolonged exposure to air. A systematic search for a stable ferrous compound resulted in the inclusion in the *B.P. Addendum* (1936) of citrated ferrous chloride.

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USE AND ABUSE OF BENZEDRINE

Although benzedrine was discovered by Barger and Dale in 1910, this sympathomimetic substance attracted no special attention until in 1930 pharmacological investigations and animal experiments were carried out by a number of workers, among whom were Alles (who first synthesized it), Piness, Tainter, Hartung and Munch, and others. It was found that benzedrine had a pressor effect, and evidence produced by Tainter suggests that this is not due to pure sympathetic stimulation or to stimulation of muscle. An action on the higher centres of the nervous system was also observed, and the therapeutic possibilities of this have excited much interest. Following the observations that the drug could rouse animals from barbital narcosis and produce insomnia in man, Prinzmetal and Bloomberg[1] used it in the treatment of narcolepsy and found it superior to ephedrine in the prevention of attacks—work that was confirmed by Ulrich, Trapp, and Vidgoff.[2] In this country Peoples and Guttmann,[3] working at the Maudsley Hospital, gave the drug in doses of 10 to 80 mg. to depressed patients and to a group of normal persons: they claimed to demonstrate a close connexion between blood pressure and emotion, but in a later paper Guttmann and Sargant[4] observed that a patient with only a trivial alteration of blood pressure might show a pronounced psychological reaction, and vice versa. According to Peoples and Guttmann the effect on the vegetative nervous system was slight, and parallel studies on the blood sugar level showed no variations beyond normal limits. Depressed patients overcame their retardation and talked more, and some degree of euphoria was noted. These striking changes in an illness which had so far proved resistant to treatment led to a therapeutic optimism which was not altogether tempered by these authors' scientifically cautious conclusion—namely, that although the drug was a promising therapeutic ally further investigation was needed to show whether permanent administration produced adaptation, habituation, or even addiction. Nor have these questions yet been answered, although Prinzmetal and Bloomberg have given the drug daily for over a year and others for periods up to six months without ill effect. Sargant and Blackburn[5] demonstrated improved intellectual performance, as measured by intelligence tests, in psychotic patients after the administration of benzedrine. In their series of 250 cases Guttmann and Sargant found that mild depression with mental retardation is the most favourable psychological disorder for benzedrine therapy; that anxiety symptoms are intensified by the drug; but that no general statement of its effect in schizophrenia is possible owing to the variety of the clinical manifestations of the latter. They regard the optimum dosage as 10 to 30 mg. a day, with which most observers agree. Davidoff and Reifenstein,[6] in a careful clinical study of a group of psychotics, stress the need for care in the use of the drug, and consider that it is most safely administered under close in-patient observation, and that its use in out-patient practice should be undertaken with considerable caution. Benzedrine has also been given to cases of post-encephalitic Parkinsonism, and appears to be of value when drowsiness and lack of energy predominate, although it is usually most effective when prescribed in combination with scopolamine or stramonium: it abolishes or reduces the frequency of oculogyric crises.

Applied locally, benzedrine was first used to relieve congestion of the nasal mucous membrane. As was to be expected, it has also been tried in other conditions. Myerson and Ritvo,[7] for example, consider it of value in the relief of intestinal spasm, and believe that it will be of use in radiological investigation of the gastro-intestinal tract, facilitating differential diagnosis between functional and organic spasm. Benzedrine increases the gastric secretion of hydrochloric acid and of pepsin, and may be of value in differentiating functional from organic achlorhydria. It is possible that its use will be extended to other conditions—for example, in raising the blood pressure in peripheral circulatory failure. Korns and Randall[8] treated a case of orthostatic hypotension with benzedrine with satisfactory results, but it would appear that in this condition ephedrine is a more potent remedy. As with any new therapeutic remedy, the discovery of contraindications follows hard upon therapeutic trials. A number of untoward psychological and physical reactions have been observed, the former including aggressiveness and other anti-social behaviour, the intensification of homicidal and suicidal trends, and hallucinatory deliria. Among the physical consequences observed are loss of weight, skin rashes, rise and sometimes paradoxical fall of blood pressure, and such cardiovascular

[1] *J. Amer. med. Ass.*, 1935, **105**, 2051.
[2] *Ann. intern. Med.*, 1936, **9**, 1213.
[3] *Lancet*, 1936, **1**, 1107.
[4] *British Medical Journal*, 1937, **1**, 1013.
[5] *Lancet*, 1936, **2**, 1385.
[6] *J. Amer. med. Ass.*, 1937, **108**, 1770.
[7] *J. Amer. med. Ass.*, 1936, **107**, 24.
[8] *Amer. Heart J.*, 1937, **13**, 114.

events as the case of transient heart-block recorded by Anderson and Scott[9]; it may be, however, that this was an exceptional case. Benzedrine is contra-indicated in hypertension, disease of the coronary arteries, and in manic excitement. Myerson, Loman, and Dameshek[10] found an increase in the red and white cell counts, the former often by as much as one to three millions and the latter being doubled or even quadrupled. This was accompanied by a striking polymorphonuclear leucocytosis. Schube, Raskin, and Campbell[11] regard these phenomena as transitory, and did not observe any permanent alteration in the blood picture either during or long after the administration of benzedrine. In our present issue at page 615 Dr. Ivor Davies records a case of acute aplastic anaemia following self-administration. The drug appears to have no effect on the basal metabolic rate.

The chief therapeutic use of benzedrine so far has been in the treatment of narcolepsy, of post-encephalitic Parkinsonism, and of mild depression, but its application in psychiatry will probably be limited. Not only is it at best a palliative but the extreme variability of its effect in different patients and in the same patient at different times restricts its usefulness. In view of the wide range of physiological and psychological reactions which attend its administration further detailed study under controlled conditions is necessary and desirable. The unrestricted sale of this drug and its indiscriminate employment whilst the whole matter is still in the experimental stage is to be deplored. It is also regrettable that the wide publicity it has received in the Press may lead to it being taken indiscriminately by those in search of a new fillip to the flagging body or mind.

A HOSPITAL STOCK-TAKING

One person out of every thirty-seven in the British Isles is a patient in the wards of a voluntary hospital during the year, and one out of every eight an out-patient. Over a million surgical operations under a general anaesthetic are carried out in these hospitals during the twelve months. The amount expended by voluntary hospitals, more than fifteen and a half million pounds, is greater than the cost to the State of police and prisons and the execution of law and justice, greater than the amount spent by the State on old age and widows' and orphans' pensions, and more than one-third of the cost of the Army, at least as the cost stood before the recent rearmament. Such are some of the figures to be gleaned from the seventh issue of *The Hospitals Year-Book*,[12] which again comes forward with a vast amount of information so tabulated that almost any fact regarding hospitals that can be expressed in figures may be elicited at a glance or with a little search.

One of the sets of tables furnishes an analysis of the sources from which the voluntary hospitals continue to derive their income. Taking the figures for more than 1,000 hospitals, and the year 1935 (the latest year for which completed statistics are available), and calculating to the nearest £, it appears that " voluntary gifts " work out at £68 per available bed, payment for services rendered (including patients' contributions) at another £53, interest on investments at £23, and other receipts and extraordinary income bring up the total to £167. We put voluntary gifts in quotation marks because in this category are lumped workmen's contributions and payments under contributory schemes, which can hardly be described in the same way as subscriptions and donations from detached benefactors, being in fact of the nature of payment for anticipated services. A directory of contributory schemes embodied in the *Year-Book* includes nearly 400 entries, many of them, of course, quite small local affairs, but they are headed by the Hospital Saving Association with an income in 1935 of £844,000, the Birmingham Hospitals Contributory Association, with £352,500, the Sheffield and District Association of Hospital Contributors, with £163,000, and the Merseyside Hospitals Council, with £153,000. In addition there are about forty provident schemes for treatment in private wards, half of them organized under the control of individual hospitals and half of them independently. Nevertheless, despite the growing tendency to arrange hospital finance on more or less commercial lines, voluntary subscriptions and donations show little abatement. There is some falling off in London, but the provinces support their hospitals nobly, and in Scotland the stream of generosity has been greatly accelerated. In Scotland the subscriptions and donations (apart from organized workmen's schemes) have gone up by £55,000 in two years. Legacies, too, are on the upgrade. The total amount bequeathed to the hospitals of the United Kingdom in 1935—namely, £2,382,736, of which only about half a million was earmarked—was considerably above the figures of the two preceding years, and here again Scotland was conspicuous, the legacies amounting to £85,000 more than the previous year, and to £154,000 more than the figure for two years ago.

The *Year-Book* is not only a statistical compendium, but a directory, and although issued under

[9] *Lancet*, 1936, **2**, 1461.
[10] *Amer. J. med. Sci.*, 1936, **192**, 560.
[11] *New Engl. J. Med.*, 1937, **216**, 922.

[12] *The Hospitals Year-Book*, 1937. Edited by R. H. P. Orde, B.A. Seventh issue. (Pp. 353.) London: Central Bureau of Hospital Information. 1937.

voluntary hospital auspices it contains a full list of municipal and public assistance hospitals, municipal maternity hospitals and homes, and county and borough mental hospitals. The outstanding event of the hospitals year has been the report of the Voluntary Hospitals Commission. The editor of the *Year-Book* (Mr. R. H. P. Orde) points out that the reforms therein advocated must be self-imposed. He writes:

"The organization which the Sankey Report urges is a self-created one: a central body representative of regional divisions. Its task, both centrally and regionally, is to collect and to distribute information, and by those persuasive powers that come from knowledge of the work to be done and from a sympathetic understanding of the views of those undertaking it, to bring about gradually and in the light of experience system and order where little or none exists at present. The organization must also possess the power of the purse. The task of bringing such an organization into being the Sankey Report places upon the shoulders of the British Hospitals Association. Time, perseverance, and common sense are demanded, and an absence of that attitude of mind which sees difficulties where none exist."

AUSTRALASIAN COLLEGE OF PHYSICIANS

The Australasian College of Physicians, which now comes into existence, has been planned to some extent on the pattern of the Royal College of Physicians of London, with variations to suit the needs of a community whose professional schools and leaders are scattered sparsely through a huge continent where means of communication are not yet fully developed. In the new Australasian College the proportion of Fellows from each State to sit on the council will be arranged in advance so as to make its governing body geographically balanced. The president will be elected by the council and not, as in London, by a comitia of all the Fellows; and the members of the college will have representation on the council. The assumption of responsibility for a qualifying examination is not contemplated: the college will have no licentiates. Its two grades will be that of membership, conferred by a board of censors after examination, or, as here, on published work; and that of fellowship, awarded to those chosen by the council year by year from among the members of more than four years' standing. Foundation Fellows will include all those recognized as teachers of medicine by the medical faculties of the universities of Australia and of New Zealand. The college will absorb the Association of Physicians of Australasia, whose members will become Foundation Fellows. It will carry on the work of that association, including the organization of an annual meeting at different centres at which scientific communications are submitted. In drawing up its constitution the new college has taken full advantage of information put at its disposal by the Royal College of Physicians of London, which last winter appointed Sir Edmund Spriggs as an emissary. His visit to Australia was followed by one to this country from Sir Charles Blackburn (Sydney), Dr. S. V. Sewell (Melbourne), Dr. L. S. Latham (Melbourne), Dr. A. W. Holmes à Court (Sydney), and Dr. E. B. Gunson (Auckland), who conferred with Lord Dawson of Penn and other colleagues at Pall Mall East. Apart from the promotion of research in clinical medicine and the dissemination of knowledge, the Australasian College will, it is hoped, serve as a meeting point for physicians and provide opportunities for discussion and common action when legislative or other measures affecting the national health arise. The first president is Sir Charles Blackburn, consulting physician to the Royal Prince Alfred Hospital, Sydney, and the vice-president Dr. S. V. Sewell, physician to the Melbourne Hospital.

TREATMENT OF MÉNIÈRE'S SYNDROME

The difficulty in treating cases of vertigo has until recent years arisen from two factors. The first of these was the lack of proper aetiological classification, and the second was the lack of effective methods of treatment. There is now a tendency to divide such cases into two main groups under the names of aural vertigo and Ménière's disease. This nomenclature can scarcely be defended on scientific grounds, but if it serves a practical end it may be justified. It is intended to differentiate between milder attacks of vertigo arising from disease or physiological disturbance in the ear and severe attacks of vertigo, vomiting, deafness, and tinnitus originating in the auditory nerve. Thus, toxic conditions such as poisoning from tea, tobacco, or even focal sepsis may be considered to produce aural vertigo, and disease in the labyrinth must be included. Where a cause can be found for the symptoms of aural vertigo by taking a careful history of the case the treatment is evident. Apart from this it has been customary to rely upon bromides and luminal, which in fact rarely do good and may aggravate the symptoms by producing drowsiness and dizziness. The suggestion of Mygind and Dederding that the attacks are due to disordered water metabolism has caused this line of investigation to be followed, and it appears that it is not so much the water as the electrolytes of sodium which are responsible. The treatment based on this is to eliminate salt from the diet and administer with each meal 45 grains of ammonium chloride, which prevents the storage of sodium. Water need not be restricted. Madelaine Brown[1] reports twelve cases of severe attacks of vertigo and vomiting in patients suffering from deafness and tinnitus which have ceased under this treatment. Ménière's disease is encountered in the absence of any evident lesion. The attacks of vomiting, vertigo, and even unconsciousness are considered by Dandy[2] to have origin in the auditory nerve, and he has shown in a recent paper that in a small percentage of cases a vascular or other lesion can be demonstrated at operation. His cases include an acoustic tumour, angioma of the cerebello-pontine angle, aneurysm of the basilar artery, and five cases in which large arterial loops produced strangulation or compression of the auditory nerve. In more than half the

[1] *J. Amer. med. Ass.*, 1937, **108**, 1158.
[2] Ibid., 1937, **108**, 931.

cases, however, in which the posterior fossa is exposed no pathological change is discovered, but the symptoms are entirely relieved by division of the eighth nerve. Donald Munro[3] also has reported on fourteen cases, ten treated by section of the eighth nerve, in one of which both auditory nerves were divided in order to obtain relief, and he draws attention to the physiology of the labyrinth as expounded by Rademaker. Normal labyrinthine reactions occur in response to rectilinear vertical or to rotary movements, and initiate the effort to return the head and eyes to a normal position. The tendency to overcorrection is prevented by the proper integration of the two labyrinths, which maintains a static position in space by control of postural tonus. One labyrinth alone can be adapted to accomplish this, but if both labyrinths are dead this function is lost until it is substituted by visual and proprioceptive reactions. Welti[4] has recorded the first case of total section of the eighth nerve performed in France with complete and permanent success, and Aubry and Ombredanne[5] have later also given accounts of the excellent results from partial section of the eighth nerve, cutting the vestibular portion and preserving hearing by sparing the cochlear division, as Dandy recommends. Increasing experience indicates that the operation of choice is division of the eighth nerve rather than direct surgical attacks upon the labyrinth, as these fail in about 30 per cent. of cases. It is clear, however, that treatment upon medical lines as recommended by Mygind[6] should be given a fair trial before resorting to so drastic an operation.

THE ANAEMIA OF HEPATIC CIRRHOSIS

A mild degree of anaemia and of macrocytosis are present in the majority of patients with liver disease, and in a minority both the anaemia and the macrocytosis may be severe.[7] It is not possible to explain the macrocytic anaemia of disease of the liver by jaundice, bad diet, achlorhydria, or gastro-intestinal defect, as cases occur in which all these factors can be excluded. Macrocytosis is not necessarily an indication of bone-marrow derangement, as external influences acting on the circulating red cells may alter its volume without affecting its content of haemoglobin. This swelling of the cell will result in its being less saturated with haemoglobin. The quantity of albumin in the plasma is diminished at some time in every case of chronic advanced disease of the liver,[8] and this in itself may lead to swelling of the red cells, as their volume tends to be inversely proportional to the level of serum albumin. Six cases of advanced portal cirrhosis, all with macrocytosis and low serum albumin, were described by Bethell and Rottschaefer,[9] who found that the amount and concentration of haemoglobin in the corpuscles were normal, indicating that a developmental factor was at work, and there was actually a disturbance of blood formation. In a heterogeneous group of other diseases of the liver, including hepatitis, abscess, and carcinoma, both the serum albumin and the corpuscular concentration of haemoglobin were low, indicating a simple circulatory cause. It thus appears probable that macrocytic anaemia due to disturbance in the development of the red cells in the marrow is restricted to, or at any rate is much more prone to occur in, portal cirrhosis. Shumacker and Wintrobe[1] were able to reproduce the macrocytic anaemia of disease of the liver in dogs and rabbits by repeated poisoning with carbon tetrachloride. The anaemia was proportional to the severity and duration of the chronic liver damage, and the blood picture resembled very strikingly that of patients suffering from pernicious anaemia. In man the bone marrow in these cases may be indistinguishable from that of pernicious anaemia. Some writers have attributed the macrocytic anaemia of cirrhosis of the liver to defective storage of the liver principle, and it is true that assay of these livers, which has now been carried out in several human cases, has shown that little or no anti-anaemic principle could be extracted. Nevertheless, this cannot be the whole explanation, for the results of treatment of the macrocytic anaemia of portal cirrhosis with preparations of liver by mouth and parenterally are disappointing. Moreover, enough anti-anaemic principle should be stored in the kidney, the brain, and other reservoirs. But although kidney and brain are effective remedies by mouth, Dakin, Ungley, and West[2] were unable to extract active haemopoietic principle from them by methods which had been successful with liver. The mechanism of pernicious anaemia is more complicated than was at first realized. It seems unlikely that the part played by the liver is passive or that it acts merely as a storehouse for material elaborated in the alimentary tract.

MENTAL HEALTH OF PRISONERS

Psychological science can make such an important contribution to the study and treatment of crime that no opportunity should be lost of explaining its possibilities to the public. Dr. W. Norwood East, in his report as Medical Commissioner of Prisons,[3] regrets the fact that magistrates still convict and sentence offenders whom they know to be insane or mentally defective. On April 20, 1934, the Home Office issued a circular to all courts of summary jurisdiction pointing out the grave objections to a system which neglects to take into consideration the relevant medical factors when deciding a case. Dr. Norwood East finds it difficult to appreciate the attitude of justices who persist in sentencing prisoners before asking for a report on their mental state. He regards this practice as undesirable and possibly unjust. It is dangerous to generalize, but one of the principal

[3] *New Eng. J. Med.*, 1937, **216**, 539.
[4] *Mém. Acad. Chir.*, 1937, **63**, 415.
[5] *C. R. Soc. Franç. Oto-Rhino-Laryng. Congrès*, 1935.
[6] *Les Syndromes Ménièriques*. By S. H. Mygind and Dida Dederding. Monographies Oto-Rhino-Laryngologiques. Les Presses Universitaire de France, Paris, 1934.
[7] Rosenberg, D. H., *Amer. J. med. Sci.*, 1936, **192**, 86
[8] Tumen, H., and Bockus, H. L., Ibid., 1937, **193**, 788.
[9] *Univ. Hosp. Bull.*, Univ. Michigan, 1936, **2**, 65.

[1] *Johns Hopk. Hosp. Bull.*, 1936, **58**, 343.
[2] *J. biol. Chem.*, 1936, **115**, 771.
[3] *Report of the Commissioners of Prisons and the Directors of Convict Prisons for the Year 1935*. London: H.M. Stationery Office. Cmd. 5430. 1937. (Pp. 128. 2s. net.)

reasons for this attitude is probably the rooted distrust of psychology that is inherent in the national character, and especially in those of the generation which chiefly occupies the petty sessional bench. It would not, of course, be fair to say that magistrates as a class are hostile to psychological knowledge, for the Magistrates' Association has always shown keen interest in and sympathy with the psychological approach to the problems of the delinquent. Time and quiet persistent instruction are the best means of bringing magistrates as a whole to enlist the help of the psychological physician in dealing with those offenders whose conduct has been substantially the result of disordered mentality. These do not, of course, comprise the whole or even perhaps the majority of all prisoners. Nevertheless, it seems from Dr. Norwood East's report that justices could do more than they do at present in giving information as well as asking for it. The Home Office circular of 1934 stated that medical officers of prisons derived much assistance in their examination into the mental condition of a remand prisoner if the court sent them all available information on his life history and mental history. In a few areas excellent and valuable information is forwarded to the prisons, but in general, as the medical officer of Brixton Prison reported, there is no real liaison between the court and the medical officer. The psychologist's assessment of a prisoner's mental condition would be more valuable to the justices if he held the key to the man's "life style." There is a wholesome and growing tendency for courts to look more at the offender and less at the offence. Whatever may be the possibilities of treating delinquency by psychological means, medical psychologists can greatly help the administration of justice if they are given fair opportunity for investigation and report and if the courts act on their advice.

THE DANGEROUS AREA OF THE FACE

Fatalities are unfortunately not very uncommon from the failure to institute prompt and energetic treatment, but failure to withhold the scalpel in a case of facial furunculosis or carbuncle—especially when the infected area is on or near the upper lip—may be disastrous. This has been well brought out by a recent study of infections in the dangerous areas of the face by Urban Maes[1] of New Orleans. Referring to infection in the vicinity of the upper lip, he says, "This is a condition in which procrastination reaps shining rewards, in which zeal and promptness are attended by fearful consequences. The physician who treats such cases will lose fewer of them if he takes his stand on the firm rock of surgical nihilism." Maes has collected twenty fatal cases of lesions in the dangerous area and twenty-four fatal cases of infection of other parts of the face not usually included in this area. Fifteen of the twenty fatal cases were in patients between 15 and 28 years of age. The upper lip area, in common with the subaponeurotic space beneath the scalp, is known as a "danger area" because of the direct intracranial venous connexions which permit the passage of infective thrombi into the intracranial venous sinuses. The venous trunk formed by the angular and (anterior) facial veins has connexions with the cavernous sinus, both by way of the ophthalmic vein and through the pterygoid plexus. Interruption of the connexion through the ophthalmic vein has been suggested and practised by ligature, but this involves an incision and tissue damage and the danger of disturbing and loosening clot by manipulations. Maes states that he has never seen any early case in which he thought the procedure was indicated or a late case in which he thought it could do any good. He concludes that ligation is theoretically correct but of little practical value. As long ago as 1852 H. Ludlow drew attention to the fatal character of boils and carbuncles on or near the upper lip. He described six cases, three of which were fatal, and wrote against local measures which "demolish the feeble bulwarks which oppose the spread of the disease"; but it remained for Logan Turner of Edinburgh in 1926 to work out the exact pathways by which the infection is spread. The rapidity of the spread and of a fatal termination in some of these cases following surgical intervention is tragic when one considers the apparently trivial character of the initial lesion. The practical lesson is that a pimple or other infected lesion on or near the upper lip is a danger signal: as Maes says, "Lay persons must learn to keep their hands off their faces, and physicians must learn to keep their hands off their patients' faces." If the lesion is of any but the simplest character rest in bed, with nursing care, is advisable; this includes the prohibition of speech and laughter, so that movement and trauma are reduced to a minimum. Nasal feeding should be instituted in graver cases and local treatment limited to warm compresses. Many surgeons now advocate conservatism in the treatment of boils wherever they occur.[2] In the treatment of boils on the face such conservatism is vital.

[1] *Ann. Surg.*, 1937, **106**, 1.

DR. ANTOINE BÉCLÈRE: CORRECTION

We much regret that through a confusion of names an obituary notice was published on September 11 (p. 562) of Dr. Antoine Béclère, the eminent French radiologist, President d'Honneur de la Société de Radiologie de France, Membre de l'Académie de Médecine, Honorary Member of the Royal Society of Medicine. Mdlle Antoinette Béclère informs us that her father is happily in good health. It was Dr. HENRI BÉCLÈRE who died last month; he also practised as a radiologist, and was Dr. Antoine Béclère's cousin. Dr. Antoine Béclère's address is 122, Rue la Boëtie, Paris, 8me.

The Harveian Oration before the Royal College of Physicians of London will be given on St. Luke's Day, Monday, October 18, at 4 p.m., by Sir Arthur F. Hurst, whose subject is "Observation and Experiment and the Physiology of the Stomach."

[2] *British Medical Journal*, 1937, **1**, 82.

ANAESTHESIA IN GENERAL PRACTICE

This is one of a series of articles, contributed by invitation

ENDOTRACHEAL ANAESTHESIA

BY

IVOR LEWIS, D.A., M.R.C.S., L.R.C.P.

Although the practice of endotracheal anaesthesia has in the past been limited to professional anaesthetists, there is nowadays an increasing number of men, both in provincial towns and in country districts, who are devoting themselves especially to anaesthesia and who are adopting modern methods to a very advanced degree. Familiarized as students with modern apparatus, they no longer regard an anaesthetic machine as a complexity beyond their comprehension. Proficiency in endotracheal technique is one of the more obvious manifestations of the first-class anaesthetist, but it should be the duty of every man who practises anaesthesia at all regularly to make himself proficient in this branch and to be possessed of the necessary equipment. Apart from adding to his capacity as an anaesthetist it places in his hands a method of artificial respiration that is second to none. Before undertaking this technique proficiency in ordinary anaesthetic methods and the possession of an efficient machine are essential. A post on the staff of a hospital is advisable, as opportunities for practice are more frequent and take place under conditions of greater safety.

Inhalational Method

The method of insufflation, in which the anaesthetic vapour is blown through a small bore catheter and returns around the tube or through a second catheter inserted for the purpose is now almost effete. Inhalation is the accepted modern usage. A wide-bore rubber tube as designed by Magill is inserted either nasally or orally into the trachea, which it fits fairly closely. A metal angle-piece and a short length of rubber tubing connect with an exhaling valve of the McKesson type. The source of anaesthetic vapour may be either intermittent (McKesson) or continuous (Magill, Boyle, or motor pump). The latter must of course have a reservoir bag. It is useful to remember that in an emergency, such as the failure of the machine, direct connexion by a length of rubber tubing from the angle-piece to a gauze-covered funnel or Hahn's cone on which ether is dripped provides a simple and effective method of dealing with an apparently hopeless situation. The indications for endotracheal anaesthesia are as follows:

1. Operations on the head and neck, including, for example, ear, nose, and throat, dental, palatal, and plastic operations, but excluding operations on the thyroid and the eyes. Foreign matter is excluded from the upper air passages and lungs, and the anaesthetist is removed from the field of operation.

2. Chest surgery. An academic reference only as this is definitely an expert's work.

3. Operations involving an inconvenient posture—for example, operations on the brain, spine, or kidney, and any procedure which necessitates a complete Trendelenburg position.

4. Surgery of the upper abdomen and oesophagus because of the diminished respiratory excursion that can be attained.

5. Cases of intestinal obstruction with vomiting. If endotracheal anaesthesia is combined with the insertion of a stomach tube regurgitated material is prevented from entering the trachea.

6. All desperate risks where artificial respiration is likely to be needed.

Absolute contraindications are thyroid operations because of the definite risk of tracheitis produced by surgical handling of the trachea, and eye operations in which it is of vital importance that the patient should not cough even once. Infections of the upper air passages and abnormalities of the larynx are relative contraindications.

Technique

There are three important points.

The first is preparedness. Every detail of the anaesthetic armamentarium should be present and in working order. The moment of inserting the laryngoscope into the mouth is not the time to discover that the battery is dead. Secondly, for oral intubation deep anaesthesia is essential, especially for beginners. Thirdly, for nasal intubation the use of carbon dioxide is essential for the best results. The aperture of the glottis is widened and the strong inspirations tend actually to suck the tube into the trachea.

The use of a 20 per cent. cocaine spray is advocated by many competent authorities, but bearing in mind the toxicity of this drug and the possibilities of idiosyncrasy I am not convinced that its routine use is justifiable. It is said to facilitate introduction by making the larynx insensitive, but the beginner would be better advised to concentrate on other details in his technique.

Oral Intubation

The beginner should first make himself proficient in this method, so that when blind nasal intubation fails the tube can be inserted into the trachea under direct vision, using the laryngoscope and Magill forceps. The patient is deeply anaesthetized by some suitable method to which the anaesthetist is accustomed. The head should be in the normal position, supported by one pillow. Hyperextension should be avoided. In the procedure about to be described it will be noticed that the right hand is used to introduce the laryngoscope. Although this involves a change of hands later I am convinced that it is sound, as the majority of people are right-handed and the introduction can be done with far greater facility and accuracy with the right hand. Furthermore, the left hand in opening the mouth does not obstruct the view, as tends to be the case when the hands are reversed. The procedure for oral intubation is as follows.

With the index finger of the left hand pull on the upper teeth; this produces slight extension and opens the mouth. With the second finger of the left hand depress the point of the chin. This opens the mouth well and keeps the lower lip from being nipped between the laryngoscope and the teeth. If the mouth cannot be opened by this manœuvre the patient is too light and the anaesthesia must be deepened. With the right hand introduce the laryngoscope to the right of the midline, keeping the tongue to the left. Following the natural curve of the mouth the base of the tongue is reached, where the epiglottis will be seen as a pink object hanging into the field of vision. This is hooked up by the tip of the laryngoscope, to which a lifting movement is now imparted. At this point it is important to avoid pivoting on the incisors, as this is the moment when the teeth tend to be damaged. The larynx

should now be visible, the white vocal cords being easily recognized.

Taking good care to maintain this position, the grasp of the laryngoscope is changed from the right hand to the left. The lubricated tube is now inserted with the right hand. It must be pushed boldly and firmly, as it tends to be deflected by the slightest obstruction if it lacks momentum. It is important to see that the tube has its concavity upwards on introduction so that it will curve naturally up to the glottis when it leaves the end of the spatula. If held in the reverse position it will inevitably fall away and enter the oesophagus.

Beginners often find it difficult to decide whether the tube is in the trachea or not, as when the tube is in position it obstructs the view through the laryngoscope. This is particularly so when the introduction of the tube is immediately followed by convulsive heaving. In such a case the tube should not be connected to the machine until there is no doubt that the respirations are taking place through the tube. It must be borne in mind that a tube in the oesophagus will cause laryngeal spasm, and the accompanying heave may blow gas from the stomach out through the tube, so that it appears at first to be in the trachea.

Before withdrawing the laryngoscope place a Mason's gag in the left side of the mouth. This prevents damage to the teeth by the laryngoscope and also biting on the tube when the laryngoscope has been removed. Withdraw the laryngoscope, taking great care not to remove the tube at the same time. Connect the angle-piece to the anaesthetic apparatus.

When quiet anaesthesia is resumed the mouth should be packed with gauze or bandage soaked in liquid paraffin. This should be done with care and gentleness—rough packing, or packing while the patient is heaving, is the commonest cause of sore throat after intubation. The tube is finally secured with strapping and castor oil drops put in the eyes.

Nasal Intubation

Except for operations upon the nose or palate the nasal route for intubation is the method of choice of the experienced anaesthetist. The anaesthesia need not be so deep, since the muscles of the lower jaw do not have to be relaxed—in fact, it can be done under gas and oxygen alone—and there is no danger of damaging fragile teeth. Dexterity in blind intubation is only acquired after long practice, and it is as well for the beginner to have the laryngoscope and Magill forceps at hand, and to have the patient well anaesthetized. A properly curved tube of the right consistency tends naturally to take an anterior course on passing through the nose and reaching the pharynx. This will bring the point up to the trachea rather than to the oesophagus. A tube that has lost its curve will remain on the posterior pharyngeal wall throughout its course and will go straight on into the oesophagus. At the other extreme an excessively curved tube will take such an exaggerated forward course that it passes the glottis almost at right angles to impinge upon its anterior rim.

Thus it will be seen that the selection of the tube is of prime importance. Special tubes have been devised by Magill which fulfil very well all the requirements of curvature and consistency and combine a thin wall, which gives maximum calibre, with sufficient rigidity to prevent kinking. Even these tubes may with age and lack of proper care lose their characteristics. They are best stored in a large round tin, so that their normal curve is maintained. Too small a tin will exaggerate the curve and make them very difficult to use; a straight narrow box will cause them to lose their curve altogether. Prolonged boiling should be avoided, as it makes the tubes flabby—they are best sterilized in a cold solution of biniodide of mercury. The technique of nasal intubation is then as follows:

The position of the head is important. The normal position when the head is supported by a single pillow is best, but some variation may be necessary in certain cases, as will be indicated later. The nose is inspected for the presence of any obstruction, and the side with the freer airway selected. A congested mucous membrane may be sprayed with 20 per cent. cocaine, which some authorities use as a routine. The patient is anaesthetized to a depth which will vary with the anaesthetist's experience of intubation. The beginner should anaesthetize as for oral intubation. Carbon dioxide—about 10 per cent.—is then administered until the respirations are deep and rapid. The lubricated tube is introduced into the nose and as little time as possible wasted in pushing the point as far as the pharynx. It should be remembered that once inside the nares the direction is backwards at right-angles to the line of the body.

Breathing can now be heard through the tube, and from this point onwards the movement of the tube must be bold and rapid. A slowly moving tube is easily deflected from its course by any obstruction if it is not in exactly the right line. In an ideal case it immediately enters the trachea. The respirations can be heard coming strongly through the tube; if the patient is only lightly anaesthetized he will give a convulsive heave, but as he is unable to close his glottis no cough will be heard. It is possible to be deceived in cases in which there is vigorous breathing through the opposite nostril, as the tube may be plunged into the oesophagus while the respirations heard in the neighbourhood of the nose are assumed to come from the tube. This error may be avoided by closing the other nostril with a finger.

If the tube does not immediately enter the trachea the beginner should promptly introduce the laryngoscope into the mouth and expose the glottis. The tube will be seen emerging from behind the palate. Any obvious deflection can be corrected by rotating the tube, and it is often possible to guide it into the trachea by this manœuvre alone. Failing this the Magill forceps must be used while an assistant pushes the tube onwards through the nose.

When it is decided not to fall back on the laryngoscope it is necessary to have a properly rationalized plan of action. The tube is not in the correct line. This may be due to lateral deflection to either side, or displacement antero-posteriorly, or, as is most common, a combination of both. Lateral deflection may be detected by a finger on either side of the cricoid, and is corrected by rotating the tube until the breathing is heard at its loudest. The antero-posterior position of the point is varied by having an assistant to lift the head vertically while the jaw is held up by the anaesthetist to prevent flexion of the head. Flexion is the last movement made, as it is effective only in the case of excessively curved tubes, and as most tubes fail in curving forward the vertical lift is far more certain to be successful.

Dangers and Complications

There are two sources of possible trauma. The laryngoscope during intubation may injure the lips, teeth, tongue, pharynx, or, finally, the glottis, which last may lead to acute oedema, especially in young children and infants. Trauma caused by the packing, on the other hand, may be due to absence of lubrication, too rough packing, or the insertion of the pack while the patient is still heaving. Post-operative sore throat, and even sloughing of the palate and pharynx, may be produced. Tracheitis is uncommon except where there has been much movement or manipulation of the neck, as in thyroidectomy.

Misplacement of the tube may be dangerous. If inserted into the oesophagus it may cause inflation of the stomach and intestines with anaesthetic vapour. With the low pressures now in common use it is unlikely that any serious damage will follow, but the surgeon will be incommoded in an abdominal operation by the distended gut. If this should occur a tube should be left in the stomach to assist the expulsion of the gas.

When too long a tube has been used it may enter the bronchus, more usually the right. It happens more often during oral intubation as the distance between the external orifice and the bronchus is shorter than by the nasal route. It should be remembered that the tubes as supplied by the makers are of generous length, and while they may be ideal for nasal intubation they will certainly need to be cut down for oral work. Therefore it is safer to keep two sets of tubes in order to avoid this accident, for tubes cut down to a safe length for the mouth become almost useless for blind nasal intubation. It is impossible to dogmatize about the average distance between the teeth and the bifurcation of the trachea, for each case must be judged individually. It is quite a simple matter to fit the patient roughly with a tube by external comparison with the neck, and if care is taken not to insert the point of the tube more than two inches beyond the vocal cords the bronchus need never be entered.

Early detection of the fact that the tube has entered a bronchus is often difficult, as the signs resemble those of too light anaesthesia. There is heaving due to irritation of the bronchus, and since only one lung is affected by the vapour the effect both of the anaesthetic and of the oxygen percentage is almost halved. Therefore, if with a normal anaesthetic concentration and oxygen percentage the patient still remains too light and is slightly cyanosed, the anaesthetist should always suspect that the bronchus has been entered. The respirations when the heaving has subsided tend to be short and jerky, and if at this point the tube is disconnected near the machine and applied to the ear the noise heard will be of a higher pitch than normal and will resemble that heard through a partially obstructed tube. Moist sounds emanating from the opposite lung will also be detected. Should the condition be allowed to persist it may result in the complete collapse of the other lung with characteristic deformity of the chest. The treatment is, of course, withdrawal of the tube. This should be done carefully, as the patient is likely to have an unusually short trachea and it is very easy to pull the end of the tube completely out of the trachea—a disastrous procedure in the middle of a facial operation.

A further possible complication is inhalation of the tube caused by a too loosely fitting angle-piece. The tube slips off the angle-piece and is inhaled out of reach. In the case of an oral tube, a gag must be put promptly between the teeth before the patient becomes light enough to clench them or the situation will become serious owing to the obstruction to the respiration. The laryngoscope is then inserted and the tube recovered by means of a Magill's forceps. In the case of a nasal tube there is not so much prospect of respiratory obstruction. The anaesthesia may be deliberately deepened until the jaw muscles are relaxed. It is usually impossible to retrieve the tube through the nose once it has got well down, so the laryngoscope must be used. The tube is seized by two pairs of Spencer-Wells's forceps and cut between them. The lower half is pulled straight out, while the upper half is pulled backwards into the pharynx until it is free of the palate and then removed through the mouth.

Conclusion

At the conclusion of the anaesthetic accurate technique is of paramount importance. It is usual to remove the tube in the theatre, but it may be left in position, nasally, for as long as twenty-four hours if so desired. In such a case it should be anchored by a safety-pin. Before taking out the tube all packing must be taken from the pharynx, and any blood clot or mucus dealt with by suction or swabbing. An ordinary airway is then placed in the mouth and the patient is given 10 per cent. carbon dioxide in oxygen through the tube. When the respirations are deep and rapid the tube is carefully removed. This procedure eliminates the possibility of laryngeal spasm, which would otherwise tend to occur on movement of the tube.

FOOD AND GASTRO-INTESTINAL DISEASE IN SWEDEN

A report on *An Investigation into Questions of Social Hygiene in the Counties of Västerbotten and Norrbotten, Sweden*[1] has recently been published in English by the Royal Medical Board of Sweden under the editorship of Dr. Nils Hellström, formerly Director General of the Board. It is a bulky, well-illustrated volume of some 800 pages dealing with geographical and climatic conditions, housing, mode of life of rural population, medical examination of school children, composition of diets, basal metabolism in relation to the composition of the food, incidence of gastro-intestinal ailments and of anaemia in relation to the composition of the food, condition of the teeth, dental diseases, histopathology of the teeth with special reference to hypovitaminosis (C and D), determination of the antiscorbutic potency of vegetable products, the widespread occurrence of C-hypovitaminosis in Vasterbotten, existing Swedish institutions engaged in the promotion of public health and personal hygiene, and means for improvements in hygiene. The purpose of the present work is not only to furnish a comprehensive report on the results of this investigation, drawing attention to any points which may be of interest to the medical profession, but also to give to the non-medical reader a survey of the results obtained, as a basis for further practical work in the field of social hygiene.

Effects of Dietary Deficiencies

The main objective of the investigation was to try to ascertain the causal connexion between the dietary deficiencies prevailing in these countries and certain morbid conditions, notably lowering of certain functions of the stomach (achylia), catarrh of the large intestine (colitis), and anaemia, which appeared to be of more frequent occurrence there than in the more southerly parts of the country. To this end some 17,400 "healthy" and sick persons were subjected to careful medical examination, the composition of the food habitually used by them being at the same time carefully ascertained. The data accumulated in these ways were then subjected to critical analysis and the conclusion arrived at that the composition of the diet is the decisive factor in causing gastro-intestinal disorder and anaemia in Norrland. No investigation of this magnitude has hitherto been undertaken in connexion with the commonest of all human ailments: gastro-intestinal disease. The report has, therefore, a unique value.

[1] Hakan Ohlsson, Lund. Swedish edition, 1934; English, partly revised edition, 1937. Price not stated.

Achylia and Diet

The Swedish investigators find that an unvaried diet—designated by them the "L-diet"—consisting of refined flour, milk, potatoes, and a little butter with little or no meat, fresh fruit, and vegetables is associated with a high incidence of achylia and its accompaniments: mild gastric disorders, mostly in the form of a sense of fullness and oppression in the epigastric region, intestinal disorders mostly in the form of severe constipation and stercoral diarrhoea. While the incidence of achylia among the users of a mixed diet (itself far from perfect) was 13.5 per cent., it was 39.1 per cent. among the users of the "L-diet," amounting to 68 per cent. among the users of the diet in its most unvaried form. It was found that achylia could be produced in human beings by changing the diet from a mixed one to one having the composition given above (the "L-diet"). Further, by substituting a mixed diet for the "L-diet" the achylia usually disappeared. A marked improvement or a restitution of the gastric function occurred in 36 per cent. of achylic cases when given a mixed diet of meat, eggs, fish, fruit, and green vegetables, in spite of the fact that the period of observation was short and that the cases varied as to the degree of functional disturbance: the greater this disturbance the more unfavourable the prognosis. The investigators would therefore appear to have established their point, on statistical, experimental, and therapeutic grounds, that "the composition of the diet is the decisive factor in the frequency of achylia in Norrland."

Anaemia was also found to be associated in a significant way with the habitual use of the "L-diet." The type of anaemia has certain features similar to those in pernicious anaemia. It is not a typical achylic anaemia, nor an anaemia due to deficiency of iron. It has a hyperchromatic element. It is explained partly by the achylia, partly by the iron deficiency of the diet, and partly by B-hypovitaminosis.

Faults of the "L-diet"

As to the faults in the "L-diet" responsible for the production of the gastro-intestinal ill-health, Dr. Martin Odin (who is responsible for that part of the report dealing with diseases and their frequency with special reference to the composition of the diet) considers that this diet "to a great extent relieves the work of the digestive apparatus, owing to the fine disintegration of the food and its deficiency of meat, fruit, and vegetables. Herein perhaps lies the cause of its achylia-promoting effect." Fresh milk often aggravates the gastric discomfort of sufferers from achylia while sour or ropy milk as a rule does not. May it not be that those children in this country who "cannot take milk" are afflicted with achylia? The advisability of giving milk to ill-fed school children without other food accompaniments may well be doubted.

Vitamin B Deficiency

The "L-diet" has other faults, chief among them being a low content of the vitamin B complex and a composition which increases the need for vitamin B. Dr. Odin remarks that "the assumption of a B-hypovitaminosis would explain most of the symptoms," though he refrains from affirming that this is their explanation. For if it be it appears strange to him that his patients should exhibit no signs of beri-beri and little or none of pellagra. His perplexity is evidence of the difficulty of freeing the mind of those adjectival encumbrances—"anti-beri-beri" and "anti-pellagra"—formerly attached to the components of the vitamin B complex. This complex is one of the dietary substances absolutely necessary for physiological well-being, including well-being of the gastro-intestinal tract, and varying degrees of malnutrition due to its insufficiency in the diet are of common occurrence among the sick. Because of the high incidence of gastro-intestinal disease in his experimental animals McCarrison[2] was led to believe that a liberal supply of vitamin B is very important in maintaining the health of the gastro-intestinal tract and that its want is a common cause of gastro-intestinal ailments. Since that time an impressive weight of evidence has accumulated to show that chronic deficiency of vitamin B may be followed by serious damage to the structure of the digestive tract and impairment of its function. Among the most recent results in this connexion are those published by A. Z. Baker, M. D. Wright, and J. C. Drummond.[3] In an experiment planned to demonstrate the types of disorders which arise from subsistence for long periods on diets deficient in vitamin B, they found that the chief effect was the remarkably high incidence of gastro-intestinal ailments. The observations recorded by the Swedish observers provide additional evidence that faulty diet deficient in vitamin B is an important cause of gastro-intestinal disease.

Members of the profession in this country will be grateful to the Royal Medical Board of Sweden for making the results of its pioneer work available to them in English. We commend the report to all those who are interested in social hygiene.

Local News

SCOTLAND

Diphtheria Immunization in Edinburgh

At a meeting of the Public Health Committee of Edinburgh Corporation on September 14 it was decided to appoint an assistant medical officer at a salary of £600 to supervise the administration of a scheme of diphtheria immunization. The medical officer of health, Dr. John Guy, stated that there had been twenty-four deaths from diphtheria in Edinburgh during the first six months of the present year, but that the number of diphtheria cases had been lower during the past three years than previously. Lately, however, there had been evidence that the severer type of diphtheria experienced on the Continent was appearing in Edinburgh, and the twenty-four deaths had occurred among 510 cases. At least two-thirds of all the pre-school children and over half of the school children in the city were susceptible to diphtheria. On an average about 400 children were immunized yearly under the child welfare department's scheme. Further, the school medical department had immunized on an average about 2,800 children and general practitioners approximately 100 children of all ages each year. The child welfare department was unable owing to the size of its clinics to carry out any more immunizations than it was doing at present. It was therefore decided that the medical officer of health should be instructed to make the immunization scheme as effective as possible, and to take up with the British Medical Association the question of obtaining the effective co-operation of general practitioners with the department in the scheme. The scheme would be entirely voluntary,

[2] *British Medical Journal*, 1920, 1, 822.
[3] *J. Soc. chem. Ind.*, June, 1937, p. 191T.

but it had been found that at least 50 per cent. of all parents were quite willing that their children should be subjected to it.

Dundee Maternity Scheme

Under the provisions of the Maternity Services (Scotland) Act, 1937, a scheme drawn up by Dr. W. L. Burgess, medical officer of health for Dundee, to provide a maternity service including midwife, doctor, and, if necessary, obstetrician and anaesthetist, has been approved. The main purpose of the scheme is to make available to women who are to be confined in their own homes the joint care of a medical practitioner and a certified midwife, with the advice or help, if it should be necessary, of an expert obstetrician. All general practitioners in Dundee are to be invited to participate, and all those in special practice as obstetricians to act as specialists. A visiting obstetrician and gynaecologist is to be appointed to Maryfield Hospital at a salary of £450 and a resident maternity services medical officer in the hospital at a salary of £400. It was agreed to send copies of the scheme for comments to the local branch of the Scottish Midwives Association, the directors of Dundee Royal Infirmary, and the Dundee Branch of the British Medical Association.

Chronic Incapacity

In Scotland in recent years it has become clear that chronic incapacity among the insured population is increasing (*Journal*, August 14, p. 350). Cases in which disability has lasted for more than twelve months have reached a new high level. The committee which recently reviewed Scottish Health Services recommended that "to meet the needs of general practice it should be a definite function of the authorities administering the statutory medical services to supplement, where necessary, the existing specialist diagnostic and other facilities." The extent and kind of these requirements is already the subject of an important investigation, and it has been decided to institute a scheme whereby, for all insured persons who have been incapable of work for a consecutive period of three months, clinical and other details will be obtained from which ultimately some quantitative idea of these needs will be forthcoming. The approved society involved will notify the Department in cases in which incapacity has lasted three months. A clinical form will then be sent to the patient's doctor for completion, and this will be returned to the regional medical staff. In a certain proportion of the cases the regional medical officer will desire to examine the patient and discuss his condition with the insurance practitioner. The form suggested, in addition to routine data such as age and occupation, seeks to obtain details of the illness under consideration in respect of history, duration, and present condition, with particular reference to what, if any, diagnostic or therapeutic ancillary methods have been adopted, and whether or not any consultant opinion has been obtained.

ENGLAND AND WALES

Recruitment of Hospital Nurses

Throughout the country considerable difficulty is being experienced in recruiting to the junior grades of female nursing staff, particularly probationer nurses and staff nurses, for duty in hospitals. The London County Council has been considering proposals for alleviating the present shortage. It is borne in mind that any steps taken to deal with the immediate problem should not prejudice whatever may be the appropriate ultimate solution. Proposals have been made for raising the initial salary of staff nurses and for substituting assistant nurses for probationers in the tuberculosis hospitals, except at Heatherwood Hospital. At present, however, some relatively minor steps are to be taken. The salary rates payable to general-trained State-registered staff nurses in the Council's hospitals are £5 a year lower than those paid by nearly all the county and county borough authorities adjoining the London county area. Approximately 350 probationer nurses complete their training twice a year. The wastage rate—that is, the proportion of probationers who do not proceed to the grade of staff nurse, was 38 per cent. during 1936, and it is anticipated that the rate this year will be considerably higher. The number of vacancies in the grade of staff nurses increased from fifty-five in June, 1935, to 306 in June, 1936, and to 454 in June of this year. It is felt that every endeavour should be made to retain in the service as many trained nurses as possible, particularly as it is anticipated that 285 additional staff nurses will be required in the fever hospitals for the biennial outbreak of measles expected during the coming autumn and winter. If the position regarding the recruitment and the retention of trained staff in the L.C.C. hospitals is not improved it will be necessary to continue to employ a large number of institute nurses; the additional cost of employing an institute nurse instead of a staff nurse is approximately £100 a year. It is proposed that for one year probationer nurses who pass their central final examinations this year shall be paid on promotion to the grade of general-trained staff nurse a salary of £75 during their first year of service—that is, an increase of £10 a year. As a corollary to this, staff nurses who passed their final examination last year and are now in receipt of £70 a year are to receive an additional £5. It is also proposed that for the next year staff nurses trained outside the service should be appointed at the rate of £70 a year—that is, an increase of £5 a year—which will bring the Council's rate up to that paid in the counties adjoining London.

Queen Charlotte's Maternity Hospital

The clinical report of Queen Charlotte's Maternity Hospital for 1936 presents formidable sheaves of statistics with little or no comment, but the statistics yield much interesting information. During the year 3,726 patients were treated by Queen Charlotte's—1,216 as out-patients and 2,510 in the wards. The latter are divided into two categories—patients "booked" in the ante-natal department, who numbered 2,266, and patients, numbering 244, sent in on emergency by outside doctors or midwives, and who, in many cases, had received little or no ante-natal supervision. Brief particulars of every case are set out in a series of tables. Out of 158 cases of albuminuria admitted for treatment, one mother died; thirteen babies also died, and nineteen were stillborn. Of thirty cases of cardiac disease three mothers died and there were three stillbirths. Of twelve cases of eclampsia, one mother died, three babies died, and four babies were stillborn. In thirty-three cases of placenta praevia the maternal mortality was *nil* and the foetal mortality over 60 per cent. The results with various methods of delivery can be thus set out:

	No. of Cases	Mothers Died	Babies Died	Still-births
Induction of labour (spontaneous delivery)	204	2	13	28
Induction of labour (forceps delivery)	31	0	1	3
Forceps (labour not induced)	166	3	7	18
Caesarean section	69	3	4	3
Manual removal of placenta	27	1	0	8

Among the 2,266 "booked" cases there were six maternal deaths, and eight such deaths among the 244 emergency cases—a maternal mortality in the first category of 2.64 per 1,000 and in the second of 32.82. The number of cases of premature birth was 160. The lowest weight at

birth of a child who survived was 2 lb. 13 oz., the weight on discharge being 4 lb. 2 oz. Thirty-nine sets of twins were born during the year; seven of the babies died and eight were stillborn. The total number of stillbirths was 137; the stillbirth rate for the "booked" cases was 3.6 per cent. and for the emergency cases 22.1 per cent. In fifty-one cases of trial labour for suspected disproportion one mother died and one baby was stillborn.

Correspondence

Rupture of Extensor Pollicis Tendon

SIR,—In the course of some work on spontaneous rupture of the extensor pollicis longus tendon I have read the letter by Mr. Maurice Lee in your issue of September 29, 1934, page 611. I would warn surgeons against following his advice when he says that should another case present itself he would not hesitate to follow Mr. Andreasen's procedure (*British Medical Journal*, 1934, **2**, 515) of suturing the distal end of the ruptured tendon to the tendon of the extensor of the index finger. I have already published in the *Acta Chirurgica Scandinavica* (1921, **55**, 177) a report, which was referred to in the Epitome to the *British Medical Journal* of January, 1922 (para. 136), of two cases in which I made an interposition from free transplanted tendon between the two portions of extensor pollicis longus tendon. It is always possible to find the proximal portion. I have taken the tendon graft from the tendon of abductor pollicis longus. The result after seventeen years is still excellent. The procedure of fixing the tendon of the extensor pollicis longus in another muscle is not the method of choice.—I am, etc.,

STEN VON STAPELMOHR, M.D.,
Chief Surgeon, Norrköping Hospital.

Norrköping, Sweden, Sept. 9.

Bilateral Lobar Pneumothorax

SIR,—Dr. Crocket's article in the *Journal* of August 7 and the ensuing correspondence in your columns on bilateral artificial pneumothorax treatment prompt me to put in a plea for a trial in this country of the bilateral lobar pneumothorax employed by Dr. Maurer of Davos in the treatment of bilateral pulmonary tuberculosis.

The technique is described in the April issue of the *British Journal of Tuberculosis*. This modification of bilateral artificial pneumothorax is applicable to cases in which the disease is limited, as it often is, to the upper lobes. The principle of the method is, in brief, that after intrapleural injection of hypertonic glucose solution the sound lower lobes are re-expanded and fixed to the chest wall, an air pocket remaining over each of the affected upper lobes. Induction is not always easy and requires skill and patience, but the after-treatment of an established lobar pneumothorax is straightforward.

Three advantages may be claimed for the method. First, the lower lobes and the mediastinum being fixed, a more effective collapse of the diseased upper lobes can be maintained, refills with an end-pressure of zero being given on both sides. Secondly, as a consequence of the gain in functioning alveolar tissue, the anoxaemia, which is frequently present in bilateral pneumothorax, disappears. Thirdly, as the air pockets are small, any of the complications of artificial pneumothorax—effusion, empyema, or perforation—which may arise will be less dangerous and more easily dealt with than when occurring in bilateral artificial pneumothorax.

During the period of induction constant clinical and radiological observation are necessary, and it should only be undertaken in a hospital or sanatorium. Considerable patience is required. The pleural sheets may not adhere at the first attempt and the intrapleural injection of increasing quantities of glucose solution may have to be repeated two or three times. If a refill is given too soon the visceral pleura is peeled off the chest wall. On the other hand, if delayed too long excessive expansion of the diseased lobe and dissemination into the redeveloped lower lobe or lobes is a theoretically possible complication. It has not been seen in practice and the risk appears to be slight. Professor Brauer in the early days of adhesion cutting saw a considerable number of cases in which the pneumothorax was almost completely let out as a result of post-operative emphysema and lack of a timely refill. He states that he never saw an intrapulmonary dissemination from this cause as long as a small air pocket remained over the affected lobe. The other possible complication is the production of a tuberculous effusion with subsequent obliterative pleurisy. I have seen one case in which a tuberculous pleural effusion developed during the induction, probably as a result of irritation of subpleural tubercles. However, the ensuing obliterative pleurisy was easily checked by appropriate treatment. It should perhaps be mentioned here that there is never any tendency to obliterative pleurisy as a sequel of the transient sterile effusion evoked by the hypertonic solution.

When bilateral lobar pneumothorax has been successfully established the after-management of the case is simple and the results more than compensate for the care required during the induction period. I have had an opportunity of observing these cases over a period of several years, and the improvement in the condition of the patient, after a bilateral artificial pneumothorax has been replaced by a bilateral lobar pneumothorax, is very striking.—I am, etc.,

R. J. C. MAXWELL, M.Ch., F.R.C.S.

London, W.C.1, Sept. 16.

Expulsion of Placenta Praevia in Advance of Foetus

SIR,—Being interested in Dr. J. W. Nankivell's Clinical Memorandum on "Expulsion of a Placenta Praevia in Advance of the Foetus" which appeared in the *British Medical Journal* of September 11, I hope you will publish this letter. The condition cannot be so extraordinarily rare as I have had personal contact with two such cases since 1927. In both my cases the entire sac was expelled intact with considerable accompanying antepartum haemorrhage, there being no operative intervention, and in both instances the child lived. I am convinced that many other instances of similar occurrences could be cited but have not been reported in the literature.—I am, etc.,

Dublin, Sept. 13. O'DONEL BROWNE.

Indications for Induction of Abortion

SIR,—May I take advantage of your columns to voice a protest against the attitude held at the moment in some hospitals on the subject of induction of abortion in "suitable cases"? I have had occasion to send two cases to London during the past month, cases in which, in

my opinion, induction of abortion was of first consequence to the patient, and in both the operation has been deemed unnecessary.

The patient in the first case, a woman of 39, has a son of 15, and has been for nine years under treatment for Parkinsonism of such severity that she has difficulty in looking after her house, and is in a state of chronic depression. What further strain the childbirth and its anxieties would impose upon her is difficult to estimate—the woman has already once attempted suicide—and one shudders to think of the mental attitude of an infant brought up in such surroundings. In the second case a woman of 35, with one child of 5, has an arrested tuberculous lesion of the lung. I was informed by the physician who saw her that "with frequent ante-natal supervision and possibly sanatorium treatment the woman would probably go through her confinement successfully."

I am sure that the specialists who saw these cases dealt rightly with them according to the rules of their departments. But I still maintain that induction of abortion was the correct treatment in both cases, and I regret that the personal aspect should have been so completely dwarfed by the clinical.—I am, etc.,

Luton, Sept. 16. EDWARD A. BUTTERWORTH, F.R.C.S.

Sulphanilamide in the Treatment of Gonorrhoeal Infections

SIR,—I, too, felt some surprise at Dr. Anwyl-Davies's, I think too early, decision (*Journal*, September 11, p. 553) that sulphanilamide is useless in the therapy of gonorrhoea. My first trials of prontosil album by mouth, begun a year ago, were on lines similar to those reported by Dr. Anwyl-Davies (who followed the trials of American observers), and led me to think the drug was useless. After increasing the dosage of prontosil, however, and even repeatedly giving one form of it intravenously, I am almost convinced that, once correct dosage and method of administration have been worked out, we shall find in this drug a specific treatment for gonorrhoea in the male which will make the irrigation room but seldom required.

I therefore welcome, and am much encouraged by, the Guy's Clinic observations briefly outlined by Drs. Erskine, Johnson, and Lloyd in their letter on page 598 of your issue for September 18.—I am, etc.,

London, W.1, Sept. 15. H. M. HANSCHELL.

SIR,—The condemnation of sulphanilamide treatment of acute gonococcal infections by Dr. Anwyl-Davies in your issue of September 11, without any suggestive alternative method, leads me to propound my own methods among my private cases. I have not got the advantage of carrying out extensive experimental work among hospital patients, so I must be very certain of my results before advocating any particular line of treatment.

Careful investigation and treatment of sixty cases during the past three years has enabled me to proclaim a cure between the fourth and eighth week, the average being the sixth week. Each of these cases has been followed up by inquiries every six months, and in none has there been any symptom reported suggestive of chronicity.

I have entirely dispensed with wash-outs, either of the urethra or bladder, but I rely upon a strict alkaline diet, urethral instillations of a mercurochrome solution massaged into the bladder, bi-weekly intradermal injections of gonoderm (Parke, Davis and Co.), and daily ultra-short-wave therapy for ten to twenty minutes. Finally, in some of the more severe cases I massage the urethra upon a straight sound and instil gomenoleo, as advocated by Professor Guyon of Paris. Three of my present cases are receiving sulphanilamide in addition to the above-mentioned treatment, but as yet no obvious benefit has been noted.

In none of my cases has any complication occurred, which fact I attribute to ultra-short-wave therapy, and this treatment is advocated by Professor von Litchtenburgh in Budapest. It seems a pity that there is no clinic in this country where poor patients can have the advantage of this method.—I am, etc.,

London, W.1, Sept. 20. MORTON WHITBY.

Nutrition in the Falkland Islands

SIR,—I have read the letter of Dr. G. Arbour Stephens in your issue of September 18 (p. 600) and the article of Dr. Cheverton (*Journal*, January 16, 1937) which prompted it. Concerning the latter, I would remark that I am by no means convinced that all the illnesses labelled "influenza" are in fact influenza. As our knowledge of virus diseases is extended it is not impossible that the term will be found to cover more than one pathological entity.

I would submit that Dr. Stephens has been misled in the course of his inquiries. He says: "Vegetables, which are so essential . . . for growing children, cannot be grown, or, if so, with great difficulty, as the weather, with so little sunshine and so much damp, does not allow of such vegetation." First of all, I would like to quote from the diary of Bernard Penrose, surgeon's mate of the armed shallop *Penguin*, which reoccupied the Falklands after the affair with the Spaniards in 1769 (which was responsible for Nelson going to sea). He says:

"But the glory of our colony was the gardens which we cultivated with the greatest care, as being fully convinced how much the comforts of our situation depended on being plentifully supplied with vegetables. . . . The soil was fine black earthy, rather shallow . . . the manure we made use of was decayed sea-weed, and this we found for the time we had to stay answered our purpose very efficiently. . . . We were plentifully supplied with potatoes, broccoli, cabbages, carrots, turnips, borecole, spinnage, parsley, lettuce, English celery, mustard, cresses, and some few but very fine cauliflowers. . . ."[1]

I was only in the Falkland Islands for a short stay, a matter of six years. During that time I grew, and so did every settlement and shepherd, ample supplies of potatoes, carrots, peas, broad beans, cabbages, kale, turnips, lettuces, beetroot, radishes, and onions. These seem to me to be quite adequate for the needs of growing children. It is nonsense to say that vegetables cannot be grown.

Again: "Malnutrition is a basic factor in the human beings, cattle, and sheep of the Falkland Islands." I would remind Dr. Stephens that the staple industries of the Falkland Islands (on land) are sheep and cattle farming. They would not be a very prosperous community if the inhabitants and the animals they raise were suffering from malnutrition. If Dr. Stephens were to visit the Falklands he would discover that both the cattle (Devons, Herefords, a few Jerseys, and Highland—all grass-fed) and sheep provide excellent beef and mutton. (Cf. the price fetched by Falkland Island wool in the open London market.) The cattle are fat, fertile, and splendid milkers. I question whether there are any in the world to beat the grass-fed island-bred horses for endurance. As for the people, they are as hardy as the

[1] *Account of the Last Expedition to the Falkland Islands.* By Bernard Penrose, Surgeon's Mate (*circa* 1772). British Museum Library.

animals, or they would not be able to do the work necessary for sheep- and cattle-farming.

"Such a state of soil combined with limited sunshine is responsible for a poor state of health amongst the children, whose resistance to gastric (*sic*) and respiratory disease is very low." I can scarcely refrain from rubbing my eyes! As I have already mentioned, I was only there for a brief period, but I have rarely met a hardier set of youngsters than Falkland Island children. During my short stay I saw no sign of "low resistance to gastric and respiratory disease." Had Dr. Stephens mentioned allergy, I would have agreed that the colony is a field worth special investigation. Asthma is met with very frequently not only in the island-born but also in those who have gone out from this country. Possibly the large amount of mutton in the diet may be responsible.

"During the last two years as many as thirty operations for appendicitis have been performed." In the six years of my experience I only saw or heard of one case of appendicitis. That variations in the incidence of this disease occur is well known. The history of its rise in the French Army following the introduction of enamelled cooking utensils and its fall when these were withdrawn is a case in point. I refrain from further comment.

Dr. Stephens then goes on to say:

"Under present conditions it is impossible (!) for the islanders to be properly fed and to be A1 people. If Great Britain is to possess colonies, then it must be on the condition that the colonists are able to lead good, strong healthy lives, or, in other words, no colony should be retained at the expense of the community and especially of the children. . . . The problem for us in Great Britain, and especially for the medical profession, is . . . are we to allow the breeding of fragile children for the sake of retaining a colony?"

This all sounds very high-souled and may do credit to Dr. Stephens's heart—at the cost, I fear, of serious reflections on his head. What does he recommend as a solution? He makes general statements of principle, in effect; that in any of our possessions where conditions of health do not reach what he considers to be a necessary standard we should abandon the places. This would also entail abandoning the inhabitants. What would happen, for instance, in the case of our tropical and subtropical possessions where malaria, dysentery, plague, and cholera are endemic, to mention only a few diseases. Would he be in favour of handing them over to other masters?

We can leave the Falkland Islands out of the question, for Dr. Stephens's statements concerning them are so grossly inaccurate as to be not only amusing but ridiculous. In fact I cannot help wondering whether somebody has been wilfully misleading him. But what about India? West Africa? Rhodesia? the West Indies? Must we just "dump" the "White Man's Burden" and leave our less fortunate fellow-subjects to their own devices? It may be that sources of information are open to Dr. Stephens which are denied to others. So far as my own opinion of the Falkland Islands is concerned it would not be easy to find a healthier, happier, or more prosperous community within the Empire. I am sure he would be interested if he were to inspect the statistics of the Government Savings Bank in the Falkland Islands. He may be interested to know, although he does not quote actual sunshine records, that after two hours' exposure to the sun in Fox Bay, West Falkland, all the skin peeled from my back, and that I still carry freckles on my arms which appeared when riding with my sleeves rolled up.—I am, etc.,

Ashtead, Surrey, Sept. 19. H. M. STANLEY TURNER, Wing Commander, R.A.F.

SIR,—Having spent two very enjoyable years in the West Falkland Island I find myself unable to agree with Dr. Stephens (*Journal*, September 18, p. 600), and I should like to detail my reasons for disagreeing.

1. With a little extra care the following vegetables were grown in my own garden: cabbage, kale, broccoli, kohl-rabi, lettuce, carrots, swedes, turnips, and parsnips. Better gardeners also produced beans and peas; gooseberries, currants, and raspberries flourished with care. The West Islanders admittedly did not grow these vegetables as a rule. They had, however, every opportunity of doing so, but were not fond of gardens and did not miss the produce.

2. The land is acid in the same way that any undrained piece of moorland is acid. One or two deep trenches correct this, and the addition of a little basic slag turns such soil into moderate garden soil. Basic slag or lime could be purchased locally. Usually seeds required regular watering until they had developed deep roots, as the wind dried the surface of the soil very rapidly. Established plants only required shelter from the wind.

3. There is one wood, planted some years ago, on the West Island in which the trees look quite English. This I accept as evidence that trees can be grown by those who understand their culture. The inhabitants as a whole do not like trees.

4. The health of the West Islanders during my stay was well above that of an average population here. Admittedly the teeth were poor, but they took little care of them, and their ideas of infant feeding were not calculated to help the growth of healthy teeth. I understand that there was some shortage of milk in Port Stanley, but this was not the case in the west. It was fashionable to have the appendix out, and I suspect that few of the cases operated on were of the acute type. Fresh infections spread rapidly, as they always do among people unaccustomed to disease. Infections brought by ships were of differing strains, and the inhabitants never acquired an immunity to them, I submit for this reason.

Bearing these facts in mind I feel that the Colonial Office has done all that is necessary for the health of the Falkland Islands, and I fail to see that a Royal Commission can help a colony where people prefer to eat bread and mutton rather than to take the trouble of keeping a garden.—I am, etc.,

T. P. BINNS, Formerly Medical Officer, West Falkland Island.

Shirebrook, Notts, Sept. 18.

Quinine Tolerance and Hyperthyroidism

SIR,—Everyone must have been struck with the great differences in the amount of quinine that can be given to patients before symptoms of cinchonism appear. I am not referring to cases of idiosyncrasy to the drug, but to intolerance to continued administration.

It has appeared to me that cinchonism is most easily induced in persons with hypothyroidism, whereas, when excessive thyroid activity is present, much larger amounts can be given. Further, in frank cases of hyperthyroidism large doses of quinine, given for weeks or months, appear to modify the symptoms and signs without producing cinchonism. Indeed, occasionally, cure seems to follow such treatment.

The suggestion I am making is that the determination of quinine tolerance might be a useful method of revealing slight hyperthyroidism.—I am, etc.,

London, W.1, Sept. 20. A. PINEY.

Ether Convulsions

SIR,—Having read with interest the letter from Mr. Matthews and Dr. Geal in your issue of September 11 (p. 559) concerning a case of ether convulsions, I should like to describe a case which occurred while under my care a few weeks ago.

The patient was a boy, aged 7, who was admitted to hospital at night as an emergency with osteomyelitis of the femur. He had a temperature of 103° and a pulse rate of 138. It was not a particularly hot night and the temperature of the theatre was not over 70°. Premedication consisted of atropine 1/150 grain. The patient was induced with gas and oxygen administered with a Boyle apparatus followed by gas, oxygen, and ether which had been taken from a fresh bottle.

The operation proceeded uneventfully until the drill was used to open the femur. The child's respirations then began getting irregular, and there was slight twitching of the face which was immediately followed by convulsions. Respiration became spasmodic, the child was blue, and the pulse was imperceptible. Oxygen and carbon dioxide were administered at once and 1.7 c.cm. of coramine. With much difficulty 2 c.cm. of evipan was given intravenously. The convulsions stopped and the pulse improved slightly.

The operation was completed without any further anaesthetic. Although the convulsions ceased the child went into tetanic spasms, which recurred every few minutes. The hands took up the typical "accoucheur's position," the ankles were dorsiflexed, and the toes flexed. During the spasm, which lasted about a minute, the child became pulseless; between the spasms the pulse was rapid and thready. The patient was returned to bed when 5 c.cm. of calcium gluconate was administered intramuscularly and rectal saline given. The spasms gradually became less until they ceased completely, about two hours after the completion of the operation. The child died ten days later from the primary infection. Chloroform was not administered as the condition of the heart was so poor that this might have further endangered the life of the patient.

I have never previously heard of a case of tetany following ether convulsions. It seems to me that this case tends to support the theory that ether convulsions are due to the diminished active fraction of the serum-calcium, which leads to neuromuscular irritability.—I am, etc.,

London, W.1, Sept. 13. A. OFENHEIM, D.A.

Aetiology of Erythema Nodosum

SIR,—In 1902 a young girl, aged 26, came into my ward at the Prince Alfred Hospital, Sydney, with the diagnosis of rheumatic fever by three doctors. Her pulse was 120 and her temperature 99.8°–100°. Her weight was 7 st. 12 lb. Both ankles and left wrist were swollen and showed typical erythema nodosum. Her brother had died of Addison's disease. After rest the temperature fell below 99°. I then tested her with tuberculin; she was very sensitive: indeed, a dose once raised the temperature over 104°. She was treated with tuberculin alt (T.A.) alone. After treatment the joints became normal again. Her weight increased to 9 st. 10½ lb; the erythema nodosum vanished, and six years later she was quite well. Salicylates had failed—tuberculin succeeded.

At that period the great dermatologists Radcliffe Crocker (my teacher) and Hector Mackenzie considered erythema nodosum to be a *rheumatic* lesion. Even in 1920 Osler wrote in his great textbook: "Erythema nodosum. . . . Some regard it as a symptom of tuberculosis, but clinically we rarely see any definite association." I am not a genius, as Sir William Osler certainly was, but I can declare that I have never seen erythema nodosum except in tuberculosis; and in my experience erythema nodosum always reacts to tuberculin in diagnostic doses and clears up rapidly with therapeutic doses of tuberculin. I cannot imagine that any English dermatologist who uses tuberculin doubts that erythema nodosum is a tuberculous lesion and nothing else. At any rate in my experience erythema nodosum is never a rheumatic lesion, nor caused by haemolytic streptococci.—I am, etc.,

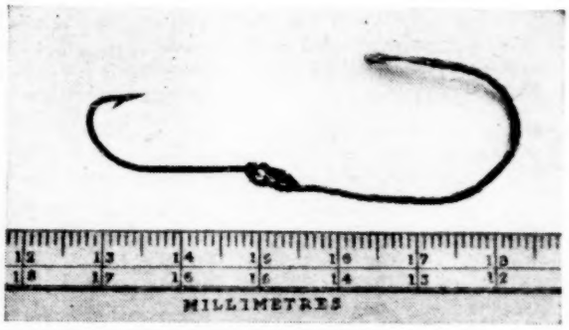
W. CAMAC WILKINSON, M.D.Lond.

London, W.1, Sept. 20.

Foreign Body in Rectum

SIR,—I was recently interested in treating a costermonger, aged 60, who attended here having had fifteen hours of rectal discomfort and desire to defaecate with no relief. Two days previously he had eaten several jellied eels.

On physical examination I discovered a piece of cheap fishing line protruding ex ano with no evidence of haemorrhage. In his anal canal this passed upwards to a fish-hook, one inch long, which lay with its hackle pointing inferiorly and its barb lightly caught in one of the valves



of Ball. When pushed upwards, and partially enclosed in the crook of my examining finger, I was able to deliver it without much pain or trauma.

Though openly congratulating the old man on a magnificent escape, I viewed the two possible causes of the presence of this "ectopic" fish-hook with wonder: (1) If inserted anally, it was an extraordinary weapon for use in anal eroticism, etc. (2) If it journeyed downwards with the eels' remains, what an amazing freedom for a hook which is designed efficiently and quickly to pierce mucous membrane.—I am, etc.,

London Hospital, E., Sept. 12. C. P. WARREN.

Parathyroid Extract and Enlarged Prostate

SIR,—In answer to Dr. F. O. Taylor's and several personal letters I wish to express regret at being so vague in the statement I made on the cure of enlarged prostate by parathyroid extract (*Journal*, August 21, p. 402). I learnt of the treatment from Dr. Wood when on holiday, and have been unable to get in touch with him since. True it was only a solitary case, but the result was so dramatic that I was anxious to hear if any of your readers knew the rationale of it. The parathyroid preparation used was Parke Davis extract 1/10 grain, equivalent to 1 grain—not 1/2 grain as previously stated—of fresh gland, given orally.—I am, etc.,

London, W.1, Sept. 17. A. P. BERTWISTLE.

Safe Milk

SIR,—Is it not time that responsible publications like a Government White Paper or a *Times* leading article ceased to mislead the public by speaking of "clean" milk when what matters is "safe" milk? The householder is thereby taught to think that if visible cleanliness is practised in what he sees of farm or dairy premises, and if his milk bottle is duly labelled "accredited," then he is safe. Enteric or tuberculosis bacilli may lurk in thousands, but they are unseen. Why are we always afraid to grasp the nettle? It is safety, not cleanliness, that really matters, and when the *Times* (September 17) says "clean milk is more attractive than dirty milk" it reassures a public that knows its milk supply is clean aesthetically and thinks therefore it is safe.—I am, etc.,

Peppard Common, Oxon, Sept. 20. ESTHER CARLING.

Importance of Post-mortem Examinations in Inquest Cases

SIR,—Some difficulty may be experienced in obtaining post-mortem examinations in inquest cases admitted to hospital because the coroner may exercise his right to refuse to grant them when asked to do so by house officers. The reasons for this, I believe, are twofold. First a desire to save the pocket of the taxpayer, and, secondly, a view that young house officers who might be over-anxious to obtain post-mortem examinations in this sort of case in order to obtain the two or three guineas which such an examination allows them should be discouraged from so doing. The latter view, which is resented by house officers, is usually quite unjustified, as they are instructed to apply to the coroner for a post-mortem by the honorary medical staff in all cases of road accident deaths or other deaths where there has been any doubt as to the probable cause of death. A refusal to allow these examinations places considerable difficulties in the way of the medical witness who is called upon to state in his opinion the cause of death at the inquest, and, in addition, it has led on more than one occasion to the return of a wrong verdict.

I have in mind, in particular, two cases, one of a young soldier who, at the local barracks, jumped over a horse whilst performing gymnastic exercises, and complained of transient pain in the back part of his neck. He was later admitted to hospital in an unconscious condition, and an *x*-ray examination revealed what at the time was thought to be a fracture of the cervical spine. He subsequently died, and the house-surgeon, on my instructions, asked for a post-mortem examination, which was refused. There were some very puzzling points about the case, one of which was a persistent hyperpyrexia. At the inquest the house-surgeon said that he could not state what the cause of death was unless a post-mortem examination was allowed. The coroner, however, overruled him and said that he was satisfied that the cause of death was accidental, due to a fracture of the cervical spine, and this verdict was returned. It subsequently transpired that another junior house-surgeon interested in the case, and not appreciating that it was an inquest one, had obtained permission from the relatives and had performed a post-mortem examination, which revealed that the so-called fracture of the cervical spine was only a congenital abnormality, and that the man had a number of small aneurysms on the circle of Willis, one of which had ruptured, giving rise to a haemorrhage, which had extended down into the region of the pons. The inaccurate verdict in this case was not a serious matter, but it is possible that the man could have ruptured an aneurysm such as this while sneezing, or even spontaneously.

The second case was one in which a man of 60 was cycling across some cross-roads and was hit by a car, turned a somersault twice in the air, landing on his head. He was brought to hospital suffering with concussion and injury to the chest. A radiograph of the chest failed to reveal any fractured ribs, but signs of fluid in the chest developed and nearly a pint of blood was aspirated from one side. The chest again filled up with blood and the old man developed signs of cardiac failure and died. A post-mortem examination was requested by the house-surgeon, but again the coroner refused to grant it, and at the inquest a verdict of death from natural causes was returned, although there was no evidence whatever of previous ill-health.

In the provinces coroners are often lawyers without medical knowledge. It is surprising that a verdict of death from natural causes could be returned in the case of a man who had been knocked down by a car, admitted to hospital with concussion, and in whom a haemothorax was present. There was not the slightest doubt in the minds of all the doctors who saw this case that his death was entirely due to the accident. I am using the publicity of your columns to voice a feeling that radical changes are needed in a system which may allow a coroner without medical knowledge to adopt the role of philanthropist and thus render more difficult the doctor's task, which is often difficult enough, of stating the probable cause of death. I would put forward a strong plea that post-mortem examinations should be available in inquest cases if the doctor in charge of the case so desires, or as an alternative that post-mortem examinations be compulsory in all inquest cases.—I am, etc.,

R. BROOKE, M.S., F.R.C.S.,
Honorary Surgeon, Royal
West Worthing, Sept. 10. West Sussex Hospital.

Homes for Cancer Patients

SIR,—I was recently shown a copy of a pamphlet setting forth the aims of a charity called "County Homes for Cancer." Neither I nor any colleagues I questioned had been circularized, although the appeal had found its way into at least one newspaper office.

I understand that a public appeal for funds on behalf of the charity is in active progress. In view of the fact that the policy of the homes is to establish wooden hutments in each county in which cancer patients may be observed and treated until the end, would it not be a wise preliminary to an appeal to seek the views of the medical profession as to the best type of building for such a purpose, and the probable cost of installing such expensive yet essential items as radium and deep *x*-ray therapy apparatus in every county, where they may well duplicate existing equipment in established institutions?—I am, etc.,

London, W.1, Sept. 18. HAMISH WALLACE.

Provincial Diabetic Clinics

SIR,—The Diabetic Association would be glad to publish in its journal particulars of diabetic clinics which are held in the provinces. This information is frequently asked for by diabetics who live outside London and wish to attend a clinic. We should be very grateful if readers would send particulars of such clinics to the secretary, the Diabetic Association, 124, Baker Street, London, W.1.—I am, etc.,

STELLA CHURCHILL,
Hon. Secretary, Medical
Sept. 14. Committee.

Obituary

DE BURGH BIRCH, C.B., M.D.,

Emeritus Professor of Physiology, Leeds University

The death took place in a nursing home at Bournemouth on September 18 of Dr. de Burgh Birch, who was professor of physiology in the University of Leeds from 1883 to 1917, and dean of the faculty of medicine for eleven years.

The son of de Burgh Birch, M.D., of the Madras Medical Service, he was born on May 18, 1852, and was educated at Hofwyl, Switzerland, at Manilla Hall, Clifton, and at the Bristol Medical School and General Hospital, proceeding to the University of Edinburgh in 1874 and graduating there as M.B. and C.M. in 1877. Then at the end of three years as assistant to the Professor of Institutes of Medicine he took the M.D., gaining the gold medal, and was elected a Fellow of the Royal Society of Edinburgh. On his retirement from the service of the University of Leeds in 1917, after thirty-four years as a teacher, he was given the title of Emeritus Professor.

Professor Birch was for many years a member of the British Medical Association, which he joined in 1883 on his appointment as the first full-time professor of physiology at Leeds. He was a vice-president of the Section of Pathology and Bacteriology at the Annual Meeting at Leeds in 1889, and vice-president of the Section of Physiology at Bristol in 1895. He had long held a commission as a medical officer in the old Volunteer Force, and for these services was created C.B. in 1909; he also received the Volunteer Officers' Decoration. For two years during the war he was A.D.M.S. to the 62nd (West Riding) Territorial Division.

ANDREW H. WATT, M.B., F.R.C.S.ED.,

Consulting Physician, Johannesburg Hospital

We regret to announce the death on September 3, at Auckland Park, Johannesburg, of Dr. Andrew Watt, who was well known in South Africa as a physician and radiologist and as an authority on silicosis. He gave up consulting practice some years ago to become chief medical officer to the Rand Mutual Assurance Company.

Andrew Hutton Watt, a Scotsman by birth and parentage, was born in 1871, and from the Royal High School went to study medicine at Edinburgh University. He graduated M.B., C.M., with honours, in 1897, and took the F.R.C.S.Ed. in 1899 after holding resident posts at the Royal Infirmary and the Royal Hospital for Sick Children. During the Boer War he served as a civil surgeon, and returned to South Africa after the declaration of peace, gradually building up a high reputation as an expert in the accidents and diseases of the gold-mining population of the Rand. He was for some years physician to the miners' phthisis sanatorium at Springkell, and then settled in Johannesburg as a consulting physician and radiologist. He was the author, with L. G. Irvine, J. P. Johnson, and W. Steuart, of *Silicosis (Miners' Phthisis) on the Witwatersrand*. On retiring from the active medical staff of the Johannesburg Hospital he was elected honorary consulting physician.

Dr. Watt joined the British Medical Association in 1898 as a member of the Johannesburg Division. He was president of the Witwatersrand Branch in 1926–7 and a member of the Federal Council. In 1932 he was appointed a member of the South African Medical Council, through which body his deep knowledge of industrial disease and insurance problems was always at the disposal of the Union Government.

GEORGE H. SIMMONS, M.D.

Dr. Alfred Cox writes:

May I add a few words to your feeling tribute to my old friend? For many years he was, in a way, my opposite number, for though he resigned the secretaryship of the A.M.A. in 1911, as general manager he kept an alert eye on all medical affairs inside and outside the United States. I was introduced to him on one of his visits by my then chief, Whitaker, and a friendship grew up between us which was greatly strengthened by many letters I had from him. He took a great interest in our insurance struggle and favoured me with his views on our tactics—views which were always shrewd. But his chief characteristic was the one on which your obituary notice laid stress—his ability to look at affairs in a detached and dispassionate way. This was very valuable to his friends, for I need hardly say that at the time of the fight none of us was able thus to regard affairs.

In all the crucial periods of the British Medical Association's work during my time I could always depend on his interest and on his advice—spontaneously offered, for he was an assiduous reader of our *Journal*. Though a patriotic American he was proud of his English birth and loved the scenes of his youth, to which he often returned, never without paying a visit to B.M.A. House. His modesty and self-effacement, to which you have justly paid tribute, concealed immense energy and a very sound judgement. He was indeed a "grand old man," for age never dimmed his interest in his life's work.

Dr. JAMES FORSYTH FALCONER, who died suddenly at Hastings on September 12, was born at Elgin in 1875, the son of James Leslie Falconer. He was educated at Elgin Academy and the University of Edinburgh, and took the M.B. and Ch.B. degrees in 1898 and the certificate in medical psychology in the following year. His first appointments were those of house-physician to the Royal Hospital for Sick Children, Edinburgh, house-surgeon to the Glasgow Royal Infirmary, and assistant physician to the Edinburgh Fever Hospital. He was then for some years assistant surgeon and ophthalmic surgeon to the North Ormesby Hospital, Middlesbrough, before settling in Brixham, where he became medical officer of health, Admiralty surgeon, medical officer to the child welfare centres, visiting surgeon to the Seamen's Orphanage, and surgeon to the Brixham Hospital. Dr. Falconer joined the British Medical Association in 1900 and had held office as chairman of the Cleveland Division, Representative at the Annual Meeting in 1919, and a member of the Scrutiny Subcommittee of 1919–20.

Universities and Colleges

UNIVERSITY OF LONDON

A course of three lectures on "Social and Geographical Pathology of Cancer and Tuberculosis" will be given by Dr. Georg Wolff, formerly Director of the Section of Medical Statistics in the Public Health Department of the City of Berlin and Privat-Dozent in the University, at the London School of Hygiene and Tropical Medicine, Keppel Street, W.C., on October 4, 5, and 6, at 5.30 p.m. The chair at the first lecture will be taken by Sir Ernest Graham-Little. Admission to the lectures is free, without ticket.

The Services

Colonel W. E. R. Williams, O.B.E., I.M.S., has been appointed Honorary Surgeon to the Viceroy and Governor-General of India.

COMMISSIONS IN THE R.A.M.C.

The War Office announces that applications are invited from medical men for appointment to commissions in the Royal Army Medical Corps. Candidates will be selected for commissions without competitive examination, and will be required to present themselves in London for interview and physical examination on or about October 21, 1937. They must be registered under the Medical Acts, and normally must not over the age of 28 years.

Successful candidates will in the first instance be given short-service commissions for five years. During the fourth year of this period they will be given the opportunity of applying for a permanent commission. Those not selected will retire on completion of five years' service with a gratuity of £1,000.

Full particulars of the conditions of service and emoluments, also forms of application, may be obtained on application, either by letter or in person, to the Assistant Director-General, Army Medical Services, the War Office, London, S.W.1.

Medical News

The annual dinner of past and present students of University College Hospital will be held in the library of the Medical School, University Street, W.C., on Friday, October 8, at 7 for 7.30 p.m., when the chair will be taken by Dr. W. F. Addey. Applications for tickets, accompanied by remittances (tickets 12s. 6d. each, not including wines), should be made not later than October 7 to the dinner secretary, University College Hospital Medical School, University Street, W.C.

The annual dinner of the University College Hospital Medical Women's Association will be held at the Langham Hotel, Portland Place, on Friday, October 8, at 7.30 for 8 p.m., when the chair will be taken by the president, Dr. Freda Kelly. Members intending to be present should notify Dr. A. L. Winner, 4K, Portman Mansions, Baker Street, W.1, before October 5.

The annual dinner of the Middlesex Hospital Medical School will be held at the Savoy Hotel on Friday, October 1, at 7.30 p.m., with Dr. Douglas McAlpine in the chair.

The annual old students' dinner of St. Thomas's Hospital will be held at the Dorchester Hotel, Park Lane, on Friday, October 8, at 7.15 for 7.45 p.m., with Dr. J. S. Fairbairn in the chair.

The annual dinner of past and present students of St. Mary's Hospital Medical School will be held at Claridge's on Saturday, October 2, at 7.30 p.m., with Mr. V. Zachary Cope in the chair.

A course on recent advances in the knowledge of infectious diseases of children will be held at the University Children's Clinic of the Charité Hôpital, Berlin, under the direction of Professor Bessau, from October 18 to 23. In addition to the ordinary infectious diseases of childhood, rheumatic infection, meningitis, poliomyelitis, encephalitis, pneumonia, tuberculosis, and syphilis will be discussed. The fee is RM. 50. Further information can be obtained from the Berliner Akademie für ärtzliche Fortbildung, Robert Koch-Platz 7, Berlin, N.W.7.

Lord Horder will give an address at the opening session of the Third National Coal Convention, which is to be held at Harrogate on October 6 and 7.

A sessional meeting of the Royal Sanitary Institute will be held in conjunction with the Welsh Branch of the Society of Medical Officers of Health and the North Wales Centre of the Sanitary Inspectors' Association in Llandudno Town Hall on Friday, October 1, at 4 p.m., when there will be discussions on "Tuberculosis in Wales: A Stocktaking," to be opened by Dr. D. A. Powell, and "The Conway Mussel Purification Tanks," to be opened by Dr. R. W. Dodgson. Dr. D. E. Parry Pritchard will read a paper on "Notes on a Recent Outbreak of Bacillary Dysentery."

The French League against Rheumatism will hold its annual meeting in Paris on October 9, when there will be a clinical meeting in the morning at the Hôpital Saint-Antoine and a meeting at the Faculty of Medicine in the afternoon. Further information can be obtained from the Permanence de la Journée du Rhumatisme, 23, Rue du Cherche-Midi, Paris, 6e.

The annual meeting of the French Society of Oto-rhino-laryngology will be held in Paris under the presidency of Professor Brémond of Marseilles from October 18 to 21, when the subjects for discussion will be intracranial surgery of the auditory nerve by Drs. Aubry and Ombrédanne, and acute inflammation of the larynx by Drs. Le Mée, André Bloch, and Bouchet. Further information can be obtained from the general secretary, M. Henri Flurin, 19, Avenue Mac-Mahon, Paris, 17e.

A series of ceremonies and lectures and an exhibition will be held at Prague, Brno, and Bratislava from September 24 to 28 to commemorate the one hundred and fiftieth anniversary of the birth of the celebrated histologist J. E. Purkinje.

On the occasion of the annual Buckston Browne Dinner on November 11 it is proposed to hold an exhibition of works of art by Fellows and Members of the Royal College of Surgeons of England, which will remain open for about three weeks and will be held in one of the Museum Rooms at the College. Any Fellow or Member wishing to exhibit some of his work, either pictorial or sculptural, is asked to communicate with Dr. John Beattie, Royal College of Surgeons, Lincoln's Inn Fields, W.C.2, as soon as possible.

The International Congress of Hepatic Insufficiency was opened formally at Vichy on September 16 by M. Marc Rucart, French Minister of Public Health, who arrived at the spa on September 15 to open a new third-class bathing establishment. Dr. Hamilton Fairley spoke on behalf of the British delegation at the opening session, and Dr. Anthony Bassler was spokesman for the American delegation. At the request of M. Rucart a minute of silence was observed in tribute to the late President Masaryk just before the Czechoslovakian delegate, Professor Josef Pelnar, spoke. Among the other specialists representing their countries on this occasion were: Professor Michele Bufano, director of the Medical Clinic of the Faculty of Medicine of Sassari, Italy; Professor R. Brunel Hawes of the Faculty of Medicine of Singapore; Professor Alfred Mousseau of Montreal; Professor W. H. Craib, Head of the Department of Medicine of Johannesburg; Professor Dimitrije Antitech of the Faculty of Medicine of Belgrade; and Professor Soliman Azmi Pacha of the Cairo Faculty of Medicine.

A Peter Pan children's party in aid of the reconstruction fund of the Hospital for Sick Children, Great Ormond Street, is being given by the Lord Mayor and Lady Mayoress at the Mansion House on Thursday, September 30. Queen Mary and the Princess Royal have consented to attend, and Queen Mary will receive purses.

The Earl of Derby will open the new extensions to Evans's Biological Institute, Runcorn, on the afternoon of Thursday, October 7.

The Mayor of Southwark is opening the new Health Services Department of the borough in Walworth Road to-day, Saturday, September 25, at 3.30 p.m.

The annual Motor Exhibition will be held this year for the first time at Earl's Court, London, from October 14 to 23.

Sir Kingsley Wood, the Minister of Health, visited the Tyneside district on Tuesday and Wednesday of this week, and Carlisle on Thursday. On Monday he was the guest of the Lord Mayor at the Mansion House at Newcastle. After addressing representatives of local authorities at the Newcastle County Hall he inspected the work of local authorities at Wallsend, Jarrow, Hebburn, Felling, and Gateshead. On Wednesday morning he visited hospitals, housing estates, and other institutions in Newcastle, and in the afternoon opened the municipal clinic at South Shields.

With the September issue the *Journal of the Institute of Hygiene* ceases to appear as a separate publication and becomes merged with the *Journal of State Medicine*. The new journal will appear on October 1 under the title of the *Journal of the Royal Institute of Public Health and Hygiene*.

September 30 marks the fiftieth anniversary of the death of the famous German surgeon, Bernhard von Langenbeck, the founder of the German Society of Surgery.

The death is announced of Mr. A. P. Molteno, who in 1919, with his wife, made a gift of £36,000 for building and equipping the Molteno Institute for Research in Parasitology and Biology at Cambridge. The institute, under the direction of Professor G. H. F. Nuttall, F.R.S., was opened at the end of 1921 by Lord Buxton, late Governor-General of South Africa.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, W.C.1.

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone, unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

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All communications with reference to ADVERTISEMENTS should be addressed to the Advertisement Manager. Orders for copies of the *Journal* and communications with reference to subscriptions should be addressed to the Secretary, B.M.A. House, Tavistock Square, W.C.1.

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QUERIES AND ANSWERS

A.P.T. with Anti-diphtheritic Serum

Dr. W. L. ENGLISH writes: We get a number of throats which clear up immediately with 4,000 units of serum (anti-diphtheritic). How far is it legitimate to give a dose of A.P.T. at the same time as the prophylactic dose of serum?

Buccal and Lingual Ulcers

Dr. ALICE JOHNSON (Wimbledon, S.W.19) writes: In answer to "Puzzled" (*Journal*, September 11, p. 564), I have found Chesebrough's mentholated vaseline spread over the ulcer two or three times a day of great use.

Dr. L. FORMAN (London, W.1) writes: Recurrent painful ulcers of the mouth have been described in association with agranulocytosis, which may occur spontaneously, or with the periods, or may be produced by a drug containing pyramidon. To detect rhythmical agranulocytosis it is necessary to examine the blood one or two days before the period is due. Erythema multiforme of the mouth also produces blisters which rupture, leaving superficial ulcers. In some cases small doses of streptococcal vaccine given intradermally—for example, 2 millions at weekly intervals—may be useful.

Mr. CHARLES E. SALTER (Exmouth) writes: I have found ultimate relief in this troublesome condition by giving thyromang (gr. 1/2 and gr. 1/8) bipalatinoids (Oppenheimer) night and morning, preceded by half a tumbler of water and followed by a whole tumbler in fifteen minutes, for two to three months continuously.

Medical Treatment for Dupuytren's Contracture

"NADAUD" asks what treatment he can offer to a "small" patient for Dupuytren's contracture other than operation, and whether fibrolysin and iodolysin fulfilled their early promise.

Ultra-violet Irradiation

Dr. F. HOWARD HUMPHRIS writes: The points raised in this question (*Journal*, August 28, p. 438) cannot be answered satisfactorily in a few lines. Ultra-violet light has been used extensively for the treatment of health and for the maintenance of it. Properly administered it is likely to be of great assistance to those who are run down and overworked, but otherwise in normal health. There is no objection to its frequent use over a period of years provided dosage is more or less accurate and it is administered at properly spaced intervals. "Ultra-violet" should consult one of the many books on the subject.

Cancrum Oris

Dr. J. B. C. MADGE (Shipton Thorpe, York) writes with reference to the letter on cancrum oris in the *Journal* of August 28 (p. 438): Similar lesions are often caused by yaws or bubas, which is protean in its manifestations. Bishop Bere of the Umka Mission wrote a poem in 1888 on the subject.

LETTERS, NOTES, ETC.

"Rheumatic" and "Rheumatism"

Sir FRANK FOX, Secretary of the Empire Rheumatism Council, writes from London: Dr. George S. Banks of Aberdeen (*Journal*, August 7, p. 306) is to be congratulated on his zeal for the purity of the English language. He will be pleased to note that the Empire Rheumatism Council is not guilty of the error to which he calls attention; its title is *not* Empire Rheumatic Council.

Anti-dazzle Regulations

Readers are reminded that under the Road Vehicles Lighting Regulations, 1936, the new anti-dazzle regulations made by the Minister of Transport in April, 1936, come into force on October 3, from which date no head lamp may be used on any vehicle unless the beam of light emitted therefrom is either (1) permanently deflected downwards; (2) capable of being deflected downwards, or both downwards and to the left, at the will of the driver; (3) extinguishable by a device which substitutes a dipped light; or (4) extinguishable by a device which at the same time either deflects the beam of light from another lamp downwards, or both downwards and to the left, in such a manner as to render it incapable of dazzling at a distance of twenty-five feet any person whose eye level is not less than 3 feet 6 inches from the ground. The regulation does not apply to any head lamp fitted with an electric bulb if the power of the bulb does not exceed 7 watts and the lamp is fitted with frosted glass or other material which has the effect of diffusing the light.

Action of Meat Extracts

Dr. A. CRAWFORD (Bermondsey, S.E.) writes: The report of Dr. Boon's work on the action of meat extract in the *Journal* of August 28 (p. 412) is interesting. In view of his finding that meat extract increases the hydrochloric acid and that beef powder was the only substance examined to stimulate the excretion of pepsin, one wonders if a cold expressed beef juice, which contains coagulable protein and meat extractives, has the effect of increasing both hydrochloric acid and pepsin. I find that vague dyspepsias of the atonic fermentative type improve when a little beef juice is taken immediately before meals.